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ABSTRACT

This report of a project to develop and test a prototype system for the delivery of continuing education (CE) to two defined target groups of registered dietitians includes user needs, alternative approaches, the operational plan, the management plan, and personnel. Major tasks involved in the project are described: (1) development, implementation, and evaluation of 36 competency-based CE programs; (2) progression toward an operational communication satellite system; (3) utilization of networks for the necessary communication satellites through institutional relationships already initiated; (4) establishment of a program advisory committee to determine appropriate content areas for CE delivery; and (5) marketing consultation from satellite business systems. Appendices include STARDATE questionnaires, Focus Group instrument survey on CE needs, assumptions and sources used for cost analysis, STARDATE project description, assessment of interpersonal skills, and earth station site maps for experimental areas. (CMV)

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PLANNING FOR APPLICATIONS OF COMMUNICATIONS SATELLITES IN EDUCATION

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March 31, 1978

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I.0 ABSTRACT

This Operational Plan/proposal is submitted by The American Dietetic Association (ADA) to the National Institute of Education (NIE) as the end product of the six-month planning contract (Contract No. 400-77-0106) and in response to the Scope of Work delineated in the original RFP (NIE-R-77-0012), "Planning for Applications of Communications Satellites in Education."

The proposed goal of this project is to develop and test a prototype system for the delivery of continuing education (CE) to two defined target groups of Registered Dietitians. A Project Advisory Board will serve in an auditing capacity to ensure that this prototype will be a usable model for the professional community at large.

The above goal will be accomplished by the following major tasks:

- Development, conduct, and extensive evaluation of 36 competency-based CE programs by the Center for Educational Development (CED), University of Illinois at the Medical Center, the major sucontractor under this proposed 39-month demonstration project.
- Progression away from the experimental and toward the operational communication satellite system.
- Utilization of networks for the necessary communication satellites through institutional relationships already initiated with the Appalachian Education Satellite Project, the Veterans Administration, the Southern Educational Communications Association, the Medical University of South Carolina, and the Howard Hughes Medical Institutes.
- Subcontracts let to the Public Service Satellite Consortium to provide (among other things) interface between ADA and the P.B.S. Public Television Service System sites, and to Nippon Electric Company, Ltd. to technically support a series of freeze-frame transmission programs.

- A Program Advisory Committee to determine appropriate content areas for CE delivery via communications satellite.
- Marketing consultation from Satellite Business Systems.

The American Dietetic Association is seriously interested in undertaking a well-organized evaluation of the potential value of communications satellites to deliver services to a national professional population. To this end, the above activities will be integrated to produce a comprehensive research, demonstration, and evaluation project which is expected to yield a prototype delivery system which could be studied by other professional groups as an continuing education delivery system.

The ADA is a professional member organization of 36,000 members working to improve nutrition in the United States, advance the science of dietetics and nutrition, and to promote education in these and allied areas.

ADA has had extensive experience providing continuing education services via communication satellites through its participation in CTS experiment #7.

2.0 USER NEEDS

The purpose of this section is to discuss the user needs which The American Dietetic Association (ADA) will address in its plan for a multi-year demonstration program in the delivery of continuing education (CE) via communications satellite. Obviously, the main user group of concern to ADA is its national membership of Registered Dietitians. However, ADA expects to address the needs of the National Institute of Education, the professional community at large, and specifically the community of health professionals through its proposed efforts discussed in this plan. During the development of this plan, ADA has not only attempted to understand the needs of its own constituency, but also the larger institutional needs of the professional community. ADA wishes to ensure that its proposed demonstration will have a high probability of answering certain institutional questions regarding the delivery of educational services by communications satellite which are beyond the immediate scope of the needs of dietetic practitioners.

2.1 Needs of the National Institute of Education

In its response to the original Request for Proposal for this planning study (RFP NIE-R-77-0012, "Planning for Applications of Communications Satellites in Education"), ADA described its perception of the key question that NIE needs to answer: 'Can a large user group design and implement a comprehensive set of educational services which meet specific needs of its target population in such a manner that it can independently support the use of communications satellites?' The question has an obviously economic slant to it. Due to its past research and development efforts, NIE is aware of the capabilities of communications satellites to effectively deliver a variety of educational services. The rationale bounds regarding the use of communications technology are not 'what is possible,' but 'what can the learner community afford?' The answer to this question will determine not only the interest of the learner community in communications satellites, but also the direction of the market suppliers as well. As was commented recently to NIE in a reviewer's comments on a conference on videodisc systems:

> "However, this does not mean that what is possible will be available to educators. What is delivered in the marketplace will depend on perceptions of the market, where the profits are judged to lie, and either explicit or de facto standardization decisions." (Lipson, 1977)

Certainly, NIE is concerned with other issues related to the applications of communications satellites to educational services. As Grayson (1977) notes, "Issues for education center around developing applications that will satisfy given needs in an affordable manner, how institutions and communities can organize themselves to conduct and support a satellite-based activity, and how one moves from a demonstration into an operating system that provides services on a continuing basis."

2.2 Needs of the Professional Community for Continuing Education

There are perhaps several applications the professional community could make of communications satellites. Of specific interest to ADA, though, is the professional community's need for CE delivery and the application of communications satellities to respond to those needs. During the course of the six-month planning study undertaken by ADA, both primary and secondary data were collected from many seqments of this community.

ADA expects that NIE is familiar with the almost universal need of teachers to continue their education in order to maintain certification. This situation has now been replicated throughout many professions in the United States. In many cases, this is a structured requirement imposed by either the professional association or some state licensing or certification board. This is true for such professions as: pharmacists, nursing home administrators, social workers, certified public accountants, realtors, lawyers, optometrists, veterinarians, nurses, dentists, psychologists, and physicians.

Two movements in the United States appear to be the driving force behind this need for continued professional education. They are the increased demand for professional accountability and the "knowledge explosion." The consumer movement in the United States has resulted in an attitude which is not as accepting of the professional as "god" as perhaps was true in the past. Increasingly, the consumers of the professional community's services are questioning the once-revered doctor, lawyer, psychologist, etc. One unobtrusive measure of this trend is the skyrocketing cost of liability insurance throughout the professional community. If it is accurately reported (Public Service Satellite Consortium, 1977) that 90% of all individuals who have formally published are alive today and the total volume of technical information is doubling every ten years, then the professional community faces some difficulty in its attempt to keep pace with this "knowledge explosion." In its attempt to stimulate the practitioners of various professions, the states and professional associations have increased the structured demand for continuing professional education.

The problem of the professional community does not seem to be so much one of change and increasing trends toward specialization as it is the rate at which this change is now occurring. The new professional brings to his work a rather broad knowledge in a discipline which is provided by undergraduate and graduate training. As the professional tends to specialize in a given area, the unused skills and areas of knowledge tend to be lost over a time. If the professional's environment changes, and he/she is required to move horizontally into another area of practice, this deterioration of skills and knowledge will act as a barrier. Also, the professional's attempt to move vertically toward greater specialization becomes impeded as new issues in a field render old techniques and knowledge obsolete (Norgren and Warner, 1966). Without CE, the professional practitioner is effectively limited in both vertical and horizontal movement. This becomes not only an individual problem to the professional, but also an area of concern to the average citizen who supported the professional's higher education training through the federal government.

Some of the major national issues in professional continuing education relevant to satellite communications include (Wolff, 1977):

- Ability for individuals to acquire and maintain professional training which allows them to deliver a high quality service to their consumer.
- Ability of specific groups of professionals to advance their careers as positions become available due to turnover or minority opportunities within their organizations.
- Increasing rate of reentry into the work force by women.
- Professionals' difficulty in remaining abreast of current developments within their field.
- Growth in the number of professional associations requiring structured continuing education as part of a mandatory program of certification or licensure.
- Technology and information transfer.
- Career redirections to meet changing national needs.

In order to collect primary data regarding the professional community's need for CE within the brief time frame (six months) of the planning period, ADA initiated a Delphi process. The purpose of this exercise was to gather and synthesize subjective data from informed individuals in order to project the needs of other professional associations which could be addressed by ADA in its proposed plan for a communications satellite experiment. The first meeting of this Delphi group was held in February, 1978 to initiate the exercise.

Participants in the Delphi group process were drawn from a variety of disciplines. The criterion for selection was that the individual be able to represent the needs for continuing education in his/her specific discipline. The participants were informed that the purposes of the exercise were to present the initial results of ADA's needs assessments, to offer some background regarding communications satellities, to provide information regarding ADA's past experiments with this technology, to attempt to validate by criticism and discussion the initial findings of ADA and its subcontractor (Center for Educational Development, University of Illinois at the Medical Center), to suggest new areas of data collection and analysis, and to predict by means of group discussion the probable trends in CE delivery in the future within their disciplines. While the group represented the diverse backgrounds of different disciplines, they all shared in common the experience of delivering CE to their specific professional practitioner group. Added to this common experience was the shared understanding of ADA's structure, its attempts to develop a delivery system of continuing education, and its educational experiments with communications satellites to date.

The participants proved to be more similar than they were diverse. Their experiences with CE delivery, the problems they encountered with this task, and their observations proved that there existed a common base of experience in this heterogeneous group. This common base also indicated that the abilities to share CE problems and solutions exist across a wide spectrum of different professions. The participants were as interested in sharing their own experiences with others as they were in gaining some new insight from others who, although in a totally different professional area, were nonetheless educators as well. The fact that each participant "got something" out of the interaction

was considered important because one function of this group was to establish ongoing contacts with professionals who would be willing to work with ADA in an advisory capacity during its proposed demonstration project. A list of the participants in this Delphi process can be found in Appendix I.

After presentation and discussion of the six-month planning project and its findings, the group viewed a segment of the satellite workshop on videotape. Then they moved into a modified nominal group process to identify problems that communications satellite educators might face in the future. Each participant made a list of problems, or barriers, that he/she perceived. Then each participant in turn verbally identified one problem from his/her list and that problem was written on a flip chart. The process continued without discussion until all problems had been listed on the chart. Once the problem list had been developed (a total of 24 were listed and numbered) each participant selected and placed in rank order those ten problems which he/she felt were most important. Participants were then asked to write their rank orders next to the problems.

When the group had finished this task they were asked to rank the proportional importance of each problem by giving arbitrary values from 100 for the highest priority to 0 for the lowest priority problem. These values were collected and provided a second rank order for the ten problems. At the beginning of the task, the group had been told that they were to focus on problems in using communications satellites to deliver CE, but they were not expected to solve the problems. The ten most important problems listed by the Delphi Group, along with their first and second rankings, can be found in Figure 2.1.

ADA found the Delphi process very beneficial. It is ADA's intent to continue using the Delphi process participants as a Project Review Board for ADA's proposed demonstration project. The purpose of the Project Review Board would be to ensure that ADA maintains accountability to the professional community's needs as ADA pursues its project goals. Not only are these participants highly qualified to speak for the professional community's interest in the formation of a prototype for CE delivery via communications satellites, but they are all sufficiently secure in their own competence as educators to be able to offer well-focused criticism. This was evidenced by some of the comments received during the Delphi process as ADA explained its experiments with communications satellites. It was dramatically emphasized that the participants were not interested in communications satellites as some new educational plaything; all of the participants appeared to have "been around long enough" that they were tired of substantial investments in new technology with little attention paid to the educational process itself. As one participant noted, "The rotary press was to have replaced the lecture, but the lecture is still the most widely used teaching method" (George Miller). Therefore, it can be expected that these individuals (and others who may be added) are able to speak not only as representatives of other professional groups' interests, but also as hard-nosed educators.

One common theme that runs through the literature on CE for professional practitioners is that there is as yet no direct measure of service outcomes which prove the effectiveness of common modes of CE. This concern is perhaps best summed up and answered in a recent report on licensure and credentialing (Cohen and Miike, 1973):

FIGURE 2.1

BARRIERS TO THE EFFECTIVE USE OF COMMUNICATIONS SATELLITES
FOR CONTINUING EDUCATION DELIVERY BY THE PROFESSIONAL COMMUNITY

February, 1978 Delphi Process

Absolute Ranking	Proportional Ranking	Barriers
2	1	Lack of commitment to proper planning for the appropriate use of the communications technology leads to programmatic goals and objectives which are inappropriate for the chosen communications channel.
1	2	High cost of using communications satellite technology to provide effective educational service delivery.
3	3	Lack of data regarding the cost-effectiveness of communications satellite technology in comparison with other communication technologies which are more pervasive.
4	4	Performance standards do not exist for proper evaluation of continuing education via communications satellite.
5	5	There does not exist at present a satellite network that is both widely available and usable for "practice" for the development of a delivery system.
7	6	There is a lack of appropriate software and supporting materials for the educational programs which could be delivered via communications satellites.
6	7	Organizational "walls" create a lack of coordination in satellite delivery.
9	8	Learners have not yet "learned to learn" in non-traditional methods and, as a result, many learners may think they prefer the lecture modality as opposed to other options which may be available to them via communications satellite.
10	9	The relationship between competence in the practice of a field and continuing education is not known precisely enough to calculate cost-effectiveness.
8	10	Satellite education specialists are lacking; this causes a low level of skill in satellite usage for communicating educational experiences.

"If traditional modalities of continuing education have such amorphous qualities, and if the major rationale is for professional incentive, why require them, especially when the bridge to high quality patient care is so tenuous? The answer is that it is probably the most practical method available at this time in addressing the quality of care problems on a broad scale. Continuing education, in the traditional forms now employed, is the only type of yardstick practically applicable at this time to a whole professional class."

2.3 Needs of Registered Dietitians for Continuing Education

Before presenting the needs of the actively practicing Registered Dietitians in the United States, it is appropriate to provide the reader with some background information regarding The American Dietetic Association, characteristics of the Registered Dietitian population, and the registration requirements which impact on the CE needs of dietetic practitioners. There will also be a brief account of the methodology employed to determine these needs and the target group for the proposed demonstration project.

- 2.3.1 The American Dietetic Association

Founded in 1917, The American Dietetic Association is a professional organization of 36,000 members working in concert to improve the nutrition of human beings, advance the science of dietetics and nutrition and promote education in these and allied areas. ADA assumes the responsibility for establishing the educational prerequisites for practicing in the profession of dietetic, as well as maintaining a program in continuing education for practitioners. ADA develops literature and publications in nutrition education for the public and its members. ADA also publishes a monthly professional journal, the Journal of The American Dietetic Association.

The ADA National Headquarters Office is located at 430 North Michigan Avenue, Chicago, Illinois 60611. ADA Headquarters employs approximately 90 salaried full time professional and administrative staff. In addition, approximately 225 members serve on various ADA boards and committees on a volunteer basis.

ADA has structured a comprehensive communications network for dissemination of information to its membership. The national membership is subdivided into six regions, each of which has a representative on ADA's "Commission on Operations." Every state in the nation, plus the District of Columbia and Puerto Rico, has an affiliated State Dietetic Association; these state associations meet twice a year. The large metropolitan areas have one or more local affiliated district association which meet monthly.

- 2.3.2 Continuing Education of Dietitians

Of the 36,000 members of The American Dietetic Association, there are 27,635 Registered Dietitians. In order to acquire and maintain registered status, a dietitian must meet specific eligibility requirements, complete a registration examination, and acquire a specified number of approved CE hours over a fixed period of time. The purpose of registration is to protect the health, safety, and welfare of the public by encouraging high standards of performance for persons practicing in the profession of dietetics. Maintenance of the registration status greatly enhances the individual dietitian's opportunity for employment because many institutions will only employ Registered Dietitians.

There are approximately 425 post-secondary education programs approved by The American Dietetic Association to train dietitians at the undergraduate and graduate levels. An individual interested in becoming a Registered Dietitian (R.D.) can gain the necessary educational and clinical experience through any one of four program types: 1) the Coordinated Undergraduate Program, 2) an Intership, 3) as an Associate, or 4) through a Master's Degree Program. Regardless of the program type, all potential dietitians meet a set of minimum academic requirements and complete a specified program of clinical practice. Under a Coordinated Undergraduate Program (CUP), the student completes all academic and clinical requirements within four years. The Intership program type requires the student to complete all work for their baccalaureate and then participate in a one-year internship which is offered in conjunction with an affiliated hospital. Those individuals wishing to qualify through the Associate program type first receive their baccalaureate degree and then secure approval and complete a term of employment in dietetics before becoming a Registered Dietitian. It is also possible for an individual to receive the necessary educational experience in a Master's Degree program; once this person has completed six months of clinical experience, he/she is eligible to apply for registration.

In each of the four program types, the student's educational experience must meet a set of minimum academic requirements. These requirements are divided into two parts: basic requirements and areas of specialization requirements. If the student completes the basic requirements plus the requirements for one of the four areas of specialization, that individual is considered to have met the minimum academic requirements. The basic requirements courses are in four areas of subject matter: physical/biological, behavioral/social sciences, professional sciences, and communications sciences. A general education in each of these areas is considered essential to anyone wishing to become a dietitian. The selection of an area of specialization provides students with an opportunity to acquire training in the specific subfield in which they intend to seek employment. The four areas of specialization are: General Dietetics, Administration, Clinical Dietetics, and Community Nutrition.

Once an individual has completed all course work and experience in preparation for entering the profession of dietetics, he/she is eligible to take the registration exam. This examination is administered semi-annually to eligible applicants by an independent testing organization under the supervision of the Commission on Dietetic Registration.

Once registered, each dietitian must complete 75 contact hours of CE over each five-year period. The Commission on Dietetic Registration maintains records of all approved CE hours completed by each Registered Dietitian on a yearly basis. In order that these hours be credited toward maintenance of the status of Registered Dietitian, the CE activity must be specifically approved. Approval may be given prior to the activity itself, in which case the instructor files a description of the activity's sponsor and content with the Commission's staff for review. An individual dietitian may also participate in an activity which he/she feels is eligible for CE hours, in which case the individual submits a request for subsequent approval for the activity to the Commission's staff.

Within the last reporting year (June, 1976 through May, 1977), the Commission's staff gave prior approval for 75,300 CE experiences. In addition, subsequent approval was granted for 10,355 educational experiences. Prior approval requests for these activities were most frequently received from the following organizations: district dietetic associations, other allied health organizations, and state dietetic organizations. Among the educational activities most frequently requested for prior approval were: lectures and addresses by Registered Dietitians and other allied health professionals, workshops of six or more hours in duration, and "journal clubs." The latter are special study groups in which group members discuss preassigned articles from professional journals.

In light of recent literature which questions the ability of various states, organizations, and groups to provide credit for mediated instruction (Wolff, 1976; Hall and Mitzel, 1977), it may be of interest to the reviewer to note that ADA has recently given prior approval to two such programs: a series of computer-assisted instruction programs at Ohio State University, and the STARDATE workshops (ADA's participation in CTS Experiment #7) which are conducted via satellite. In approving these programs for CE credit, ADA has set an organizational precedent and laid the groundwork for similar programs.

The ADA Headquarters Office is directly involved in providing a limited amount of CE material. This activity has taken the following forms:

- Development and promotion of national workshops in areas of critical concern to dietetic practitioners which are not currently addressed by other providers of continuing education.
- Development and promotion of multimedia self-study kits; these include slide cassette kits and audio cassette kits, both of which include reading materials and evaluation instruments. ADA maintains a "cassette-a-month program" to which an individual may subscribe on a yearly basis.
- Conduct of a national annual meeting for professionals in the field of dietetics. At the 1977 ADA Meeting there were approximately 9,000 members in attendance.
- Publication of the Journal of The American Dietetic Association.
- Publication and promotion of articles, papers, and books of relevance to dietetic practitioners. The 1976-77 ADA Publications Catalog lists approximately 700 entries.

- 2.3.3 Methodology Employed to Determine Continuing Education Needs of Dietitians

The major proportion of the effort under the planning contract was devoted to the collection and analysis of primary and secondary data regarding the continuing education needs of dietitians. The sources employed for the collection of secondary data were as follows:

- Journal of The American Dietetic Association position advertisements. The position advertisements of the JADA were reviewed for a six-year period. The purpose of this review was to determine trends in the demand for specialized skills, abilities, and knowledge necessary to practice dietetics and to determine the trends in demand for R.D.'s by different work environments.

- General membership data base.
  ADA maintains a rather comprehensive data base on its membership which includes the entire universe of Registered Dietitians practicing in the United States. This report draws on that data base in order to provide context for the other data sources employed to determine the needs of the dietitian population.
- Commission on Dietetic Registration files.
  The Commission on Dietetic Registration maintains a significant amount of data regarding the CE experiences gained by dietitians. The staff of the CDR are responsible for the approval and assignment of credit hours to all CE experiences completed for credit by Registered Dietitians. This data has provided information regarding the amounts of money spent for different types of CE experiences and the various sponsoring organizations.
- STARDATE evaluation data.
  During 1977, ADA conducted a series of communications satellite experiments entitled, "STARDATE" (Satellite Technology Applied to Registered Dietitians' Avenues of Training and Education). A variety of qualitative and quantitative data were collected from 146 participants in the STARDATE project. The attitudinal data collected from this population is considered rather valuable for the design of this demonstration project. The STARDATE evaluation provided ADA with an opportunity to explore various issues relevant to the delivery of CE via communications satellites with a population which has actually shared this experience. This data also presents some understanding of the potential market behavior of dietitians as consumers of CE delivered via communications satellite.

  The reader will note that in some of the tables to follow there are two STARDATE entries: "STARDATE Survey" and "STARDATE Participants." The "STARDATE Survey" label indicates that the data source was a survey administered to 666 randomly selected Registered Dietitians living in the target area of the STARDATE '77 experiment. This data was collected prior to the initiation of the STARDATE experiment. The data labeled "STARDATE Participants" refers to a data base provided by those dietitians who actually completed a series of continuing education workshops delivered by communications satellite during 1977. (See Appendix II for the two STARDATE questionnaires used to collect data.)

Two sources of primary data were used:

- Focus group interviews conducted by the Center for Educational Development (University of Illinois at the Medical Center).
  Three focus group interviews were held in the midwest (Columbus, Chicago, and Kansas City) with approximately 12 dietitians in each group. The focus group interview technique utilizes a relatively unstructured interview guide of questions posed to a respondent panel of potential consumers of a service who have a common base of experience. The method is based on the concept that there is a "gestalt" to the focus group interview not available from a series of individual depth interviews (Merton, Fiske, and Kendall; Wells).

The focus group instrument (see Appendix III) was developed under a subcontract by the Center for Educational Development (CED). Staff of CED also conducted the three interviews. Participants were selected from both clinical and administrative dietitians and included both rural and urban residents. The interviews provided the staff at CED with appropriate hypotheses and questionnaire items for the development of a survey research instrument.

- A national survey of Registered Dietitians conducted by CED. The survey research instrument was developed by staff at CED (see Appenix IV). The instrument was sent to a national sample of dietitians who were chosen randomly from all actively practicing Registered Dietitians who were listed as either clinicians or administrators on the ADA Annual Membership Survey. The instrument contained 78 closed and open ended items. The survey was pretested by the focus group interview participants prior to mailing to the national sample. Non-respondents were sent a follow-up letter with an additional copy of the survey. The survey was sent to a total of 847 dietitians throughout the United States. The number of usable returns was 540 (64% response). The response rate and quality of data are considered adequate for making inferences regarding the national population of administrative and clinical dietitians. The data analysis employed the SPSS program and was conducted by staff at CED.

- 2.3.4 Characteristics of the Registered Dietitian Population

This subsection of the report will provide the reader with descriptive data regarding the national population of dietetic practitioners from the ADA general membership file, the CE needs assessment conducted under CED's subcontract, and the STARDATE surveys. Variations among the various sources of data can be explained by:

- Difference in the size of the population. ADA membership population base for the various items is approximately 30,000, whereas the size of the sample for the STARDATE participant group is only approximately 128.
- Variation in the question item construction. The questions asked across surveys were not entirely uniform. Although staff have taken care to collapse data cells to provide comparative information, the "fit" is not always precise.

It has been the experience of ADA that a great majority of the public is not well informed regarding the variety of work settings involving the services of a dietitian. Many of the public have had their first (and possibly only) experience with a dietetic practioner in either a hospital setting where they have required a modified diet, or as children in their school's foodservice operation. A review of Table 2.1 indicates that this public perception accounts for approximately half of the dietitians' professional work areas. A significant number of dietetic practitioners also work as private consultants, faculty in colleges and universities, public health settings, and the business community. Although the largest professional setting for dietitians is the hospital environment, a majority of dietitians are not responsible for direct clinical or therapeutic health care services. The majority, as is noted from Table 2.2, are responsible for the administration of operations related to nutritional services. In most cases, the Registered Dietitian is responsible for the management of personnel who are involved in the direct provision of food services.

"Describe the primary area of your professional work (or your last job, if not currently employed)."

PRIMARY WORK AREA	ADA MEMBERSHIP 2/78	NIE SURVEY 2/78	STARDATE SURVEY 8/77	STARDATE PARTICIPANTS 8/77
Hospital	46.0%	70.2%	38.3%	60.6%
Consultant	7.7%	4.7%	14.6%	11.0%
College/university	12.8%	3.6%	10.3%	6.3%
Public health agency	4.2%	2.4%	7.9%	5.6%
Community program	4.3%	1.5%	2.4%	3.9%
Clinic	10.4%	*	2.8%	3.9%
School foodservice	4.6%	8.8%	4.3%	0.8%
Other (business, not in dietetics, etc.)	10.0%	8.8%	19.4%	7.9%
	N = 28,921	N = 533	N = 253	N = 127

* Not available.

Source: CED "Survey on Continuing Education Needs." Question No. 14, as compared with other data bases.

TABLE 2.2

"Select the primary focus of the majority of your professional responsibilities (or of your last job, if not currently employed)."

PRIMARY RESPONSIBILITY	ADA MEMBERSHIP 2/78	NIE SURVEY 2/78	STARDATE SURVEY 8/77	STARDATE PARTICIPANTS 8/77
Clinical/therapeutic	20.9%	45.3%	20.5%	26.6%
Administrative/management	35.8%	42.1%	40.7%	47.7%
Teaching	11.5%	4.5%	9.9%	7.8%
Consultant	13.0%	5.0%	16.0%	10.2%
Other (public health, research, technician, etc.)	18.3%	3.1%	12.9%	7.7%
	N = 25,319	N = 539	N = 263	N = 128

Source: CED "Survey on Continuing Education Needs," Question No. 13, as compared with other data bases.

TABLE 2.3

"How many total years of work experience do you have as a dietitian?"

YEARS EMPLOYED AS DIETITIAN	NIE SURVEY 2/78	STARDATE SURVEY 8/77	STARDATE PARTICIPANTS 8/77
Less than 2	1.3%	11.8%	15.8%
2 - 5	29.1%	25.0%	28.3%
6 - 10	23.1%	21.2%	18.1%
11 - 20	23.5%	24.3%	22.8%
Over 20	23.0%	17.7%	15.0%
	N = 532	N = 288	N = 127

Source: CED "Survey on Continuing Education Needs," Question No. 6, as compared with other data bases.

The employment market for dietetic practitioners is rather dynamic. Evidence of this can be seen in Table 2.3 which indicates a rather even distribution of years of work experience, with a somewhat larger percentage of the group as new entrants to the profession (i.e., less than five years of experience).

The population of dietetic practitioners in the United States is mostly female. Of the 36,000 members of ADA, approximately 80% of these are male. Frequently there is a reluctance on the part of the federal government to invest a great deal of money in programs designed to increase the productivity of female workers. Often the benefit-cost ratio for such projects is unfavorable due to the movement of women in and out of the labor force because of their culturally defined role as homemakers. A review of Tables 2.3 and 2.4 indicates that this is not the case with dietetic practitioners (if indeed it is the case with the labor force in general). The reader will note that the age distribution of dietitians is similar to the distribution of the years of experience. In other words, as dietitians get older, they do not tend to drop out of the work force; they tend to continue the practice of their profession well into their 50's. Therefore, an investment by the federal government to increase the productivity of this group of practitioners is likely to have a payoff over a long-term period.

Two other characteristics of this population also bear review. The outstanding characteristic that warrants an investment by the federal government is the fact that this group already has several assets worth leveraging. In other words, the professional population in the United States is able to make efficient use (on a macro level) of additional federal dollars invested in further training and development. Major indicators of this potential are yearly salary and previous academic training. A review of Tables 2.5 and 2.6 demonstrates that dietitians already have access to substantial assets which would enable them to make efficient use of an investment by the federal government in a delivery system to improve their access to continuing education. The reader will note that almost 57% of this population earns $12,000 or more per year. Also, the entire population has at least a bachelor's degree and almost 22% have graduate degrees. This indicates a recognition of the value of additional high quality education and the ability to contribute toward the cost of such educational programs.

- 2.3.5 Needs of Registered Dietitians for Continuing Education Services

  - Need for a greater volume of continuing education.
    The obtaining of sufficient volume of continuing education does not appear to be a generally significant problem for dietetic practitioners. Apparently, there is enough CE available, through one means or another, that the average dietitian can accumulate a sufficient amount (75 hours) during a five-year period in order to maintain his/her registered status and thereby be allowed to continue as a practitioner. A review of Tables 2.7 and 2.8 support this assertion. The reader will note from Table 2.7 that over 80% of the respondents agreed that they had no difficulty in getting 75 hours of CE credit within five years. Also, over 68% of the respondents disagreed with the statement "there is not enough CE offered in my area." It is perhaps of interest to note, however, the lower response to this assertion when the question is rephrased to "in my area."

TABLE 2.4

"Age:"

AGE	NIE SURVEY 2/78	STARDATE SURVEY 8/77	STARDATE PARTICIPANTS 8/77
Under 30	28.0%	30.7%	44.5%
30 - 39	25.2%	25.2%	20.3%
40 - 49	16.0%	20.3%	19.5%
50 - 59	22.0%	16.9%	13.3%
60 or over	8.8%	6.9%	2.4%
	N = 536	N = 290	N = 128

Source: CED "Survey on Continuing Education Needs," Question No. 8, as compared with other data bases.

TABLE 2.5

"Present yearly salary, rounded off to the nearest $1,000."

YEARLY SALARY	ADA MEMBERSHIP 2/78	NIE SURVEY 2/78	STARDATE SURVEY 8/77	STARDATE PARTICIPANTS 8/77
Under $8,000	18.9%	8.0%	33.2%	15.1%
$8,000 - $11,999	24.2%	10.0%	13.9%	14.4%
$12,000 - $15,999	33.8%	38.0%	28.4%	44.5%
$16,000 - $19,999	14.5%	26.4%	14.4%	14.1%
$20,000 - $24,999	6.1%	13.0%	8.2%	8.7%
$25,000 - $29,999	1.7%	3.0%	1.9%	2.2%
$30,000 or more	0.8%	1.6%	0.0%	1.0%
	N = 27,261	N = 439	N = 208	N = 92

Source: CED "Survey on Continuing Education Needs," Question No. 10, as compared with other data bases.

TABLE 2.6

"What is your highest academic degree?"

HIGHEST DEGREE OBTAINED	ADA MEMBERSHIP 2/78	NIE SURVEY 2/78	STARDATE SURVEY 8/77	STARDATE PARTICIPANTS 8/77
Bachelor's	79.1%	74.8%	66.1%	64.3%
Master's	20.3%	24.3%	33.1%	34.8%
Doctorate	1.6%	0.9%	0.3%	0.9%
	N = 31,210	N = 540	N = 254	N = 115

Source: CED "Survey on Continuing Education Needs," Question No. 2, as compared with other data bases.

A review of the focus group data regarding this issue indicates that the geographic availability of CE may be limited for many dietitians and that they turn to either a mediated program (e.g., ADA's Cassette-a-Month program) or they travel to state or national dietetic association meetings. The focus group interviews do indicate that those dietitians who are greatly limited in their amount of personal time due to family responsibilities find it difficult to locate a sufficient volume of CE hours at times when the dietitians are available. In other words, the CE programs are there, but because of time constraints these people cannot participate.

In summary, then, the issue of volume of continuing education does not appear to be a widespread problem. For those dietitians for whom this is a problem, it appears to be a temporary one which would pass with a change in personal time constraints.

- Need for continuing education programs of higher quality. Although CE is available in sufficient quantity, the quality of the programs which are available is apparently a significant issue. The subcontractor, CED, noted in its report from the focus group interviews that "frequently expressed criticisms of CE focused in on the quality of the programs." As one dietitian from Kansas City put it:

> " I think what we try to do in CE is what we try not to do in the classroom. I mean, we try to do it on a 1-40 group without any follow-up and without any clinical experience and without any practice, just because of the time frame."

The above qualitative data is supported by the fact that many dietitians do not apply to ADA for CE credit for many of the programs they participate in because they do not think they've learned anything from the experience. While it is heartening that many dietetic practitioners "police" their accumulation of CE hours for registration so carefully, it is distressing to ADA that many of the CE experiences shared by the professionals are of such low quality that they do not feel programs are worthy of CE credit. A review of Table 2.9 indicates the response to the needs survey regarding this issue.

- Need for greater variety of continuing education programs. Because of the variety of responsibilities, work environments, educational level, years of practice etc. dietetic practitioners exhibit, there is a need for a similar variety in the CE experiences available to these professionals. As one focus group participant in Columbus, Ohio put it:

> " The problem that I see with a lot of these meetings is that they are directed at such a broad spectrum of people who are attending."

And from another in Kansas City: "Things were either way over my head, or else it wasn't anything I hadn't learned in school."

One reason many dietetic practitioners have a greater need for a variety of CE offerings is that their field, like most, is becoming more fragmented with specialties. In order to provide the service expected of them, they need to acquire a greater degree of training in special areas which were

TABLE 2.7

"I have no difficulty getting 75 hours of CE credit in 5 years."

	NO DIFFICULTY GETTING 75 CE HOURS
Strongly agree	40.1%
Agree	40.6%
Disagree	12.4%
Strongly disagree	3.9%
Doesn't apply	3.0%
	N = 534

Source: CED "Survey on Continuing Education Needs," CE Question No. 15.

TABLE 2.8

"There's not enough CE offered in my area."

	NOT ENOUGH CE OFFERED
Strongly agree	9.8%
Agree	18.6%
Disagree	51.1%
Strongly disagree	17.5%
Does not apply	3.0%
	N = 528

Source: CED "Survey on Continuing Education Needs," CE Question No. 26.

TABLE 2.9

"Sometimes I don't even apply for CE credit I'm entitled to because I don't think I learned anything from the experience."

	DON'T APPLY FOR CE CREDIT
Strongly agree	7.6%
Agree	26.6%
Disagree	43.7%
Strongly disagree	8.4%
Does not apply	13.7%
	N = 526

Source: CED "Survey on Continuing Education Needs," CE Question No. 79.

covered little or not at all in their undergraduate or graduate training. In fact, the majority of Registered Dietitians currently in active practice feel that if one of their colleagues is to call him or herself a "specialist" then he/she should be required, through the registration process, to acquire a certain portion of CE hours in that specialty (see Table 2.10). A review of Table 2.11 indicates that over 78% of all respondents to the CE needs assessment do not find their current CE experiences very specialized.

- Need for continuing education experience that is worth the time and expense.

In many cases dietitians do not seem to feel that the value of the CE they receive is worth the time and dollars expended. In many cases the cost of adequate CE programs is seen as a major barrier. As one focus group participant in Chicago put it, "There are some beautiful management programs. They cost you an arm and a leg. One is coming up, 'Women Management', and it's $400. That's a good way to keep most women from learning it." However, formany dietitians the problem isn't just the cost, it's the value received for the cost. The majority of dietitians have the ability and willingness to support quality CE programs if they were available. As two focus group participants said (Chicago and Columbus respectively):

> " I would be willing to pay at least three times my membership fee if ADA would do something more for its members (in the area of continuing education)."
>
> " If you're in a profession and you want to keep up, I think you have to know before you ever go into it that it's going to cost you something to keep up your education ... I think that's sort of part of the deal when you're in any kind of profession."

The qualitative data presented above is also borne out by the quantitative information recived from the CE needs assessment conducted by CED and the data presented by STARDATE participants from 1977. The reader will note from Table 2.12 that over 30% of the respondents indicated that in terms of time alone, they're spending too much for their CE compared to what they're learning. A significant percentage (almost 40%) of all respondents to the national needs assessment indicated that they felt they were spending too much money for CE programs compared to what they are learning (Table 2.13).

A review of data from the STARDATE participants of 1977 (Tables 2.14 and 2.15) indicates that, although over 40% of the participants bore a direct cost of participation in the workshop (exclusive of registration fee) of over $50 each, 95% of the respondents felt that the workshop was worth the direct cost. This data is offered to the reader in support of the assertion that if quality CE programs are presented to the professional group, they are not only able but willing to support them financially.

- Need to upgrade competence through continuing education experiences.

Throughout the needs assessment process, including both the focus group interviews and the use of the survey research instrument, both ADA and CED were particularly impressed by the emotionally charged atmosphere surrounding the issue of dietitians' desire for increased professional competence. This competence is seen by the respondents as directly associated with their potential to become an integral part of the health care team, rather than ancillary support personnel. Although it is ADA's

TABLE 2.10

"If an ADA member calls himself/herself a specialist, he or she should be required to have at least a portion of his or her CE hours in that specialty."

	SPECIALTY CE SHOULD BE REQUIRED
Strongly agree	22.5%
Agree	51.5%
Disagree	15.4%
Strongly disagree	8.2%
Does not apply	2.4%
	N = 534

Source: CED "Survey on Continuing Education Needs," CE Question No. 57.

TABLE 2.11

"Most CE is too specialized."

	TOO SPECIALIZED
Strongly agree	2.2%
Agree	11.6%
Disagree	65.6%
Strongly disagree	17.9%
Does not apply	2.8%
	N = 535

Source: CED "Survey on Continuing Education Needs," CE Question No. 24.

TABLE 2.12

"I have to spend too much time getting 75 CE hours, compared to what I'm learning."

	CE NOT WORTH TIME SPENT
Strongly agree	7.4%
Agree	23.6%
Disagree	54.3%
Strongly disagree	11.9%
Does not apply	2.8%
	N = 529

Source: CED "Survey on Continuing Education Needs," CE Question No. 27.

TABLE 2.13

"I have to spend too much money getting CE hours, compared to what I'm learning."

	CE NOT WORTH MONEY SPENT
Strongly agree	9.6%
Agree	29.1%
Disagree	49.2%
Strongly disagree	9.3%
Does not apply	2.6%
	N = 530

Source: CED "Survey on Continuing Education Needs." CE Question No. 28

TABLE 2.14

Direct Costs to Participants (other than registration fee)

	Transportation	Living Expenses	Miscellaneous*	Total
$10 or Less	34.5%	78.6%	84.2%	25.2%
$11 - $50	31.8%	11.2%	10.3%	34.6%
$51 - $100	15.9%	5.6%	0.9%	10.3%
$101 - $200	10.3%	4.6%	0.9%	13.1%
More than $200	7.5%	0.0%	3.7%	16.8%
				N = 107

* Includes lost wages (opportunity costs).

Source: ADA STARDATE '77 "Cost of Workshop Participation."

TABLE 2.15

"Do you think this workshop was worth the total direct cost to you?"

Yes	No
95.5%	4.5%

N = 89

Source: ADA STARDATE '77 "Cost of Workshop Participation."

perspective which is shared throughout the health community that dietitians are in fact an integral part of the delivery of nutritional services, a large proportion of dietetic practitioners do not feel this way. These professionals see the potential of assuming greater responsibility, but only if they can increase their competence.

In support of this finding, the reader is asked to review the following quotes from focus group participants:

> " The degree of input a dietitian will have is probably highly correlated with what they know, which requires continuing education that's very difficult for them to get." (Kansas City)
>
> " A person who was educated 20 years ago is really lost. If you're going to be on the team, you have to be up to date so that you're not going to be the water boy. In nutrition, so much changes each year, if you continuously say ' I don't know, but I'll find out' that's not good enough." (Chicago)

Quantitative support for these findings is supplied by responses to related items from the CE needs assessment conducted by the subcontractor. A review of Table 2.16 indicates that over 56% of all respondents felt that CE is a direct help to them in the development of their careers. Perhaps this is why over 54% (see Table 2.17) of all respondents indicated that they wish to participate in more than the minimum CE experiences that are required for registration (75 hours).

Needs imposed by the employer community.

Because of the time limitation of this planning study (six months) ADA did not attempt to conduct a separate survey of employers of Registered Dietitians to gain understanding regarding the needs they see this professional group fulfilling. However, secondary data analysis was conducted regarding this issue through an examination of the classified position advertisements in the Journal of The American Dietetic Association (JADA) from 1972 through 1977. The data has been reported as "Demand for Specialized Skills, Abilities, and Knowledge Necessary for Registered Dietitians by Year" (Table 2.18) and "Position Demand for Registered Dietitians by Work Environment and Year" (Table 2.19).

The following trends were noted over the six-year period:

- Demand for specific knowledge of community and public health nutrition programs.
- Increased mention of creativity and innovation as specifically desirable abilities.
- Large number of positions for dietitians with general management abilities.
- Substantial number of advertisements for those with specific skills in patient education and counselling.
- During the six-year period, there was a dramatic increase in the number of positions advertising for dietitians with research skills.
- High volume of position announcements for teaching dietitians.

TABLE 2.16

"CE is a help to me in realizing my career aspirations."

	CE HELPS CAREER
Strongly agree	7.6%
Agree	49.1%
Disagree	25.9%
Strongly disagree	5.9%
Does not apply	11.5%
	N = 529

Source: CED "Survey on Continuing Education Needs," CE Question No. 78.

TABLE 2.17

"In the future, I'd like to attend more than the required 75 hours of CE."

	WOULD ATTEND MORE THAN 75 CE HOURS
Strongly agree	15.7%
Agree	38.5%
Disagree	29.0%
Strongly disagree	3.4%
Does not apply	3.4%
	N = 535

Source: CED "Survey on Continuing Education Needs," CE Question No. 31.

TABLE 2.18

DEMAND FOR SPECIALIZED SKILLS, ABILITIES, AND KNOWLEDGE NECESSARY FOR REGISTERED DIETITIANS BY YEAR

SPECIALIZED SKILLS, ABILITIES, AND KNOWLEDGE SPECIFIED FOR EMPLOYMENT *	NUMBER OF CLASSIFIEDS PER YEAR FROM JADA					
	1972	1973	1974	1975	1976	1977
Behavior Modification	0	1	0	3	2	0
Bilingual	1	2	2	4	4	0
Communication	1	1	3	4	2	11
Community/Public Health Nutrition	11	11	18	34	24	23
Computer Science	1	4	9	3	4	4
Creativity	7	7	3	3	6	11
Curriculum/Training Materials Development	7	4	13	5	10	17
Fast/Convenience Food Systems	0	8	6	5	0	4
Fiscal Management/Budgeting	1	9	7	3	6	7
Innovation	5	3	6	6	3	14
Inservice Training	8	20	19	25	25	12
Interpersonal	11	5	11	18	7	4
Leadership	6	2	8	9	14	10
Lipid Metabolism	0	0	2	1	2	0
Management - General	60	42	72	64	65	72
Marketing	0	1	1	0	0	3
Patient Education/Counseling	17	26	29	31	36	29
Personnel Development	1	3	5	1	4	5
Personnel Management/Supervision	35	37	39	46	42	37
Policy/Procedure Setting	5	4	2	6	1	6
Program Coordination	22	7	8	20	5	8
Program Evaluation	5	4	6	8	8	17
Program Planning/Development	21	20	33	35	29	27
Purchasing	5	9	5	1	4	7
Quality Control	2	3	0	2	3	4
Research	2	9	30	34	40	38
Student Advisement	1	8	14	14	7	11
Teaching	31	43	74	71	93	81
Writing/Media	3	0	3	2	0	0

* Other than basic clinical skills which are strongly emphasized in R.D.'s undergraduate work - e.g., menu planning, diet therapy, etc. Skills listed above are possible areas for R.D. CE - included are specialized areas of training required for certain R.D.'s to be employable (e.g., computer science), as well as possible topics for CE refreshers (e.g., purchasing).

TABLE 2.19

POSITION DEMAND FOR REGISTERED DIETITIANS
BY WORK ENVIRONMENT AND YEAR

WORK ENVIRONMENT AND POSITION/SPECIALTY TYPE	NUMBER OF CLASSIFIEDS PER YEAR FROM JADA					
	1972	1973	1974	1975	1976	1977
CLINICAL ENVIRONMENT						
Assistant Directors	26	25	19	9	9	15
Associate Directors	1	1	2	4	1	9
Clinical Administrators	25	20	4	21	11	8
Clinical Instructors	5	0	5	6	3	1
Clinicians:						
Cancer	0	0	2	0	1	0
Cardiology	0	2	1	1	2	0
Consultant	0	0	0	0	1	0
D.D.	0	1	3	0	2	3
Diabetes	2	3	2	4	0	2
General	4	6	5	12	21	24
Geriatric	0	0	2	0	0	0
Indian Health	0	0	0	1	0	0
Kosher	0	1	0	0	0	0
Obesity	0	0	0	1	1	0
Outreach	2	0	1	1	0	1
Pediatric	1	1	0	4	1	2
Prenatal	0	0	2	0	0	1
Psychiatric	1	0	2	1	2	4
Renal	0	1	1	0	2	3
Surgical	0	0	3	0	4	0
Therapeutic	51	55	44	47	41	25
Dietitians - General	13	15	23	10	3	9
Directors	33	18	26	28	26	30
Foodservice Administrators	29	12	21	16	11	10
Researchers	0	0	2	0	0	0
PUBLIC HEALTH ENVIRONMENT						
Federal Agency:						
Armed Services	0	0	1	0	0	0
Peace Corps/Project Hope	0	1	3	0	18	17
USDA	3	0	1	0	3	0
State Agency:						
Nutrition Consultant/Surveyor	0	3	2	2	3	8
Nutrition Director	3	0	1	0	0	1
Nutritionists:						
Community Ed.	0	0	0	0	1	0
Corrections	1	0	1	1	0	1
D.D.	2	1	2	4	9	7
Diabetes	0	0	0	0	0	1
Educational TV	1	0	0	0	0	0
Ethnic Minorities	7	1	4	7	2	0
General	0	7	2	7	7	10
Home Health	0	0	0	0	0	1
Maternal & Child Health	2	2	2	1	9	4
Mental Health	4	0	10	8	9	4
Outreach	1	0	0	0	0	0
County Agency: Nutritionist	2	2	3	1	1	1
School District:						
Foodservice Supervisor	5	2	1	4	1	1
Community Health Programs:						
Nutritionist	0	6	2	2	1	1
HIGHER EDUCATION INSTITUTION ENVIRONMENT						
Deans	0	0	1	2	0	1
Department Chairpersons	3	2	6	9	11	3
Extension Specialists	1	2	3	4	2	3
Faculty	11	18	40	50	72	62
Program Administrators	0	9	10	11	9	13
Researchers	4	1	6	5	4	4
Residence Hall Foodservice Directors	4	4	5	4	4	5
BUSINESS & INDUSTRY ENVIRONMENT						
Communicators	1	0	0	1	0	0
Consultants	1	3	2	8	4	3
Consumer Educators	2	0	4	1	1	0
Executives	1	0	2	0	0	1
Foodservice Managers	53	43	39	45	71	67
Quality Controllers	0	3	0	0	0	0
Sales Representatives	0	0	2	0	3	2

A review of the demand for dietitians by work environment and year indicates the following:

- Strong demand for general clinical dietitians.
- Substantial increase over the six-year period in the position announcements for such public health projects in service organizations such as Peace Corps and Project Hope.
- Continued high demand for R.D.'s in administrative and managerial positions.

These findings are of interest when considered in the context of the limited training a dietitian receives at the undergraduate or graduate level. This limitation is generally the case in the development of most professionals. The undergraduate and graduate period can only provide so much training and experience within the time and experience constraints of the learner. For example, dietitians begin their training as an undergraduate with a clinical focus on becoming a practicing dietitian at the entry level. Because most delivery systems of nutritional services require paraprofessional workers to support the delivery systems and articulation with other organizational components, the new dietitian often assumes administrative responsibility quickly. However, the undergraduate training and experience of a dietitian is not likely to be in the administrative area. The employer looks to the continuing education system to supply these needs for additional training required by the work place.

2.4 Target Population for this Project

A review of the data from the CE needs assessment conducted by CED indicates two potential target populations for a project delivering continuing education services via communications satellite. These two groups could be labeled, "CE High Achievers" and "CE Underserved."

The CE high achievers are those individuals who routinely acquire more than the minimum continuing education hours for the maintenance of registration status. That is, these are practitioners who acquire more than 75 CE hours in a five-year period. The reader will note from Tables 2.20, 2.21 and 2.22 the characteristics of the high achiever group. It appears that with an increase in years of experience, age, and yearly income the practitioner is more active in acquiring CE hours. It is difficult, given limited data, to assert that the high achiever gains the status from CE or whether the increase in status and income merely allows one to acquire more CE experience. In any event, the characteristic (i.e., high achievement of CE hours) is seen as positive and deserving of reinforcement. It is possible that as the "high achievement" group moves ahead within the field they upgrade the general profession as well. It is interesting to note that the characteristic of high achievement CE is not dominated by either the administrative or the clinical practitioner group (see Table 2.23).

The "CE Underserved" group has almost reciprocal characteristics to the high achiever group. This typology is built from data in response to the question, "There's not enough CE offered in my area." The group of respondents who feel there is not enough CE in their area tend to have less than six years of experience, are under the age of 30, earn less than $13,000 per annum, and live in rural areas (see Tables 2.24-2.27). Certainly the question can be

TABLES 2.20-2.23

"Please tell us how many continuing education hours you earned in each of the years listed."

by

"How many total years of work experience do you have as a dietitian?"

CE HOURS ACQUIRED 1973 - 1977	YEARS OF EXPERIENCE AS DIETITIAN		
	1 - 6	7 - 17	18 OR MORE
75 or less	58.5%	26.0%	22.0%
76 or more	41.5%	74.0%	78.0%
	N = 176	N = 146	N = 123

"Age:"

CE HOURS ACQUIRED 1973 - 1977	AGE		
	20 - 29	30 - 49	50 OR MORE
75 or less	62.8%	28.9%	23.8%
76 or more	37.2%	71.1%	76.2%
	N = 137	N = 180	N = 130

"Present yearly salary, rounded off to the nearest $1,000."

CE HOURS ACQUIRED 1973 - 1977	PERSONAL YEARLY INCOME			
	$10,000 OR LESS	$11,000-$13,000	$14,000-$16,000	$17,000 OR MORE
75 or less	45.5%	56.8%	39.5%	20.0%
76 or more	54.5%	43.2%	60.5%	80.0%
	N = 55	N = 74	N = 114	N = 125

"Select the primary focus of the majority of your professional responsibilities (or of your last job, if not currently employed)."

CE HOURS ACQUIRED 1973 - 1977	PRIMARY RESPONSIBILITY		
	ADMIN./ MANAGEMENT	CLINICAL	ALL OTHERS
75 or less	33.0%	44.0%	32.1%
76 or more	67.0%	56.0%	67.9%
	N = 194	N = 200	N = 56

Source: CED "Survey on Continuing Education Needs," crosstabs of Question Nos. 6, 8, 10 and 13 by Question No. 16.

TABLES 2.24-2.27

"There's not enough CE offered in my area."

by

"How many total years of work experience do you have as a dietitian?"

NOT ENOUGH CE IN MY AREA	YEARS OF WORK EXPERIENCE		
	1 - 6	7 - 17	18 OR MORE
Agree	34.6%	23.7%	27.7%
Disagree	65.4%	76.3%	72.3%
	N = 188	N = 169	N = 148

"Age:"

NOT ENOUGH CE IN MY AREA	AGE		
	20 - 29	30 - 49	50 OR MORE
Agree	33.8%	31.1%	20.9%
Disagree	66.2%	68.9%	79.1%
	N = 148	N = 212	N = 148

"Present yearly salary, rounded off to the nearest $1,000."

NOT ENOUGH CE IN MY AREA	PERSONAL YEARLY INCOME			
	$10,000 OR LESS	$11,000- $13,000	$14,000- $16,000	$17,000 OR MORE
Agree	43.1%	40.5%	25.7%	20.1%
Disagree	56.9%	59.5%	74.3%	79.9%
	N = 65	N = 79	N = 140	N = 139

"Check the appropriate area in which you are currently employed as a registered dietitian (or where last employed, if you are not now employed)."

NOT ENOUGH CE IN MY AREA	LOCALE	
	RURAL AREAS	CITY/SUBURB
Agree	45.7%	26.0%
Disagree	54.3%	74.0%
	N = 81	N = 427

Source: CED "Survey on Continuing Education Needs," crosstabs of Question Nos. 6, 8, 10 and 12 by CE Question No. 26.

raised, "Are these practitioners really underserved or not able to take advantage of CE experiences available?"

The presence of the two possible target populations does perhaps present ADA with a dilemma. If ADA develops a delivery system of CE that because of its high quality is expensive, it may not be used by the CE underachiever group due to their income level. If this were true, the result could be the development of two "tiers" of practitioners. The upper tier would be those who are already "doing well" and would be provided with the training to move ahead; those who were not doing very well would be denied access, in an economic sense, to the resources necessary to move ahead.

It appears that the answer to this dilemma lies in a compromise action. The delivery of CE services does not have to be static. In other words, the delivery system which provides CE experiences via communications satellite which are live, interactive, high quality, and competency-based can initially be supported by the registration fees from the more affluent group of practitioners. Once the start-up costs of the system for the initial program development have been amortized, the network and/or programs can be made available to the general practitioner group at a much lower fee. Also, the promotion of CE programs could be directed at the employer group as well as the practitioners. Data regarding the STARDATE experiments from 1977 indicate that a large percentage of dietitians' employers are willing and have a history of directly contributing to the cost of continuing education, reimbursing the dietitian for the cost of registration. Most employers of dietitians do not have in-service training programs, and employer groups recognize the need to help support their younger and less experienced employees in acquiring skills which will increase their value to both the client and employer groups.

In summary, it appears that both the CE high achiever and the CE underserved groups can be target populations for this demonstration project. This will require a marketing strategy which will encourage supplementation of the younger, less affluent practitioner group. It will also require the development of "spinoff" products from these live continuing education programs in order to amortize the developmental costs (e.g., study kits comprising videocassettes and accompanying software). It should also be noted that the charge to ADA by NIE in its Scope of Work (RFP NIE-R-77-0012) calls for the development of an "operational system." This will require the promotion of these CE programs to those able to afford the costs of the resulting experience.

Another characteristic of the proposed target population is full-time employment status. The reader will note from Table 2.28 that over 57%of all actively practicing dietitians are employed full-time. It has been ADA's experience with its satellite CE program offerings (STARDATE) that over 80% of all participants were employed full-time. From a market perspective, these individuals represent a viable group of CE consumers.

A review of the data from the CE needs assessment indicates that the practitioner community in the southeastern United States and rural areas in general represent a group with a higher need profile. This is based on responses to questions which indicate that those in both the south and west

TABLE 2.28

"Indicate your current employment status in the field of dietetics."

EMPLOYMENT STATUS	ADA MEMBERSHIP 2/78	NIE SURVEY 2/78	STARDATE SURVEY 8/77	STARDATE PARTICIPANTS 8/77
Full-time	57.8%	68.3%	57.8%	81.1%
Half-time or more	7.9%	9.3%	10.5%	14.2%
Less than half-time	10.4%	7.1%	13.2%	3.9%
Not employed/retired	23.9%	15.3%	18.5%	0.8%
	N = 31,754	N = 537	N = 287	N = 127

Source: CED "Survey on Continuing Education Needs," Question No. 5, as compared with other data bases.

TABLE 2.29

DIETITIANS IN ACTIVE PRACTICE BY CITY SIZE

1,000,000 or larger	2,316
100,000 - 999,999	5,980
10,000 - 99,999	6,521
9,999 or smaller	8,104
	N = 28,921

Source: ADA Membership Questionnaire, responses tallied as of February, 1978.

TABLE 2.30

"I'd travel as far as my state capital for CE related to my needs."

	WOULD TRAVEL TO STATE CAPITAL
Strongly agree	14.5%
Agree	55.6%
Disagree	16.9%
Strongly disagree	6.8%
Does not apply	6.2%
	N = 531

Source: CED "Survey on Continuing Education Needs," CE Question No. 71.

feel strongly that their financial investment in CE has too little return. However, those in the south appear to be willing to pay more for CE experiences which meet their needs. This is evidenced by the fact that the rural dietitians are even willing to pay additional membership fees (a rare event) if they were to receive more CE programs in return. This is rather significant information when one considers that the two largest groups of actively practicing dietitians in the United States are in cities of 1,000,000 or more or in towns and rural areas of less than 10,000 (see Table 2.29).

The fact that many dietitians live in rural areas and in some cases can actually be considered "isolated" will not prevent their participation in CE experiences offered under this demonstration project. Information from both the focus group interviews and the CE needs assessment survey indicate that the community of dietetic practitioners tends to be rather mobile. It was found that over 70% of the respondents were willing to travel as far as their state capitol for CE programs related to their needs (Table 2.30). Because it is unlikely that there will be a widespread network of earth stations for any one communications satellite until some time in the future, it will be necessary for participants in educational programs delivered by communications satellite to cluster themselves at one or more points within their state. The response to this question indicates that this will not become a barrier to participation for a great number of dietetic practitioners.

One of the major target groups which ADA is unable to quantify at this point in time will be those practitioners who perceive themselves to be in "communications-starved areas." This is a difficult concept to quantify. It cannot be based solely on geographic location; the concept has more to do with a perception of isolation. For example, there are a variety of dietetic practitioners who identify themselves as clinical specialists of different varieties. At this time, it is extremely difficult for any of those practitioners who identify highly with a clinical specialty to acquire any CE related specifically to their special interest (e.g., pediatric, renal, surgical, cardiovascular, etc.). The reason for this is that each of these specialty groups has only a few hundred members. These individuals tend to be spread throughout the United States in a fairly random fashion. At the present time, if a CE program were to be oriented toward their specific needs, it would be necessary to have all these individuals travel to one or more central points in the United States. While it is still true that it will be necessary to bring these practitioners to some central point in order to aggregate them as CE program participants, by using communications satellite-delivered programs it would be possible to utilize several nodes throughout the nation for this communication network. Therefore, the concept of communications-starved areas relates not only to geography but to specialized interests as well.

3.0 ALTERNATIVE APPROACHES

The purpose of this section is to present the various alternative approaches through which instructional services could be delivered to the ADA target groups. This presentation will include consideration of educational alternatives, delivery system alternatives, the various communications satellites available, methodological options for the structure of the proposed study, and the resulting alternatives of choice for this proposal. It should be noted that although ADA has appropriated and expended significant resources (approximately $100,000) during FY-77 and -78, it is in no way dedicated to the use of communications satellites unless that communications channel appears to be more cost-effective than other alternatives available in the near future.

The condition, "in the near future" is an important one, as will be noted in the discussion below of the various communications satellites available for use at this time or in the near future. The reviewer should consider the fact that, although the opportunities presented by communications satellites at this time are attended by a rather high cost, this is expected to drop substantially within the near future. It is not unfair to say that the situation is similar to the market interaction in the electronic calculator or videocassette player industry in the recent past. It is ADA's belief that it is the responsibility of the educational community not only to choose communications channels which are the most cost-effective at the present time, but to prepare constituencies to effectively use those communication options which will become reasonably cost-effective within the near future.

3.1 Educational Alternatives

In consideration of the alternatives available to ADA as it pursues the development of a continuing education (CE) delivery system, it is appropriate to examine some of the pedagogical research regarding the use of various communication channels for instruction.

One of the more interesting comprehensive studies reviewed in preparation for this report was that of Dubin and Taveggia (1968). In the summary of their study, they note the following:

> "If self-study and educational TV are as good as face-to face contact in promoting content learning, then the need for students to confront their instructors physically is materially reduced. Given the modern technologies of long-distance and instantaneous transmission of audio and visual signals, it is entirely within the realm of possibility that the traditional school and campus will no longer be the locale of instruction."

The authors noted three significant dimensions to the teaching-learning situation: the student's choice behavior regarding content, the student's knowledge-based present, and the student's motivation to learn. It's interesting to note that all of these significant dimensions regarding

teaching-learning situation have to do with the students' resources, not the educational institution's communication channels. In other words, all these variables are about the student's learning rather than the institution's teaching. In summary, the report of Dubin and Taveggia finds no significant relationship between any teaching methodology and student learning.

Perhaps of more immediate value to the purposes of ADA is the work by Schramm and Chu (1967). Their entire work is best summed up by the following passage:

> "We have recently reviewed, up to 1966, 207 published studies in which television teaching has been compared with conventional teaching. Of the 421 separate comparisons made in these studies, 308 showed no significant differences, 63 showed television instruction to be superior, and 50 found conventional instruction better.
>
> "Therefore, all these summaries show that in the great majority of comparative studies, there is no significant difference between learning from television and learning from conventional teaching; and that where there is a significant difference, it is a bit more likely to be in favor of television than of conventional instruction."

There are some major points regarding televised instruction made by Chu and Schramm which are relevant to this project:

- Availability of local program facilitators to follow up is valuable.
- Televised instruction which requires the student to problem-solve is more effective than a straight lecture.
- The inherent limitation of instructional TV in the past has been that the instructor does not receive feedback from the audience and the student does not receive reinforcement of responses.
- Teacher response does not have to be immediate.
- Students tend to keep more alert when they can be questioned over a talkback system.
- The need for interaction increases with the complexity of the material.
- Lack of personal contact with a television lecturer was not found to affect achievement, nor did lack of such contact produce unfavorable attitudes toward courses.
- Five factors determining student attitudes toward instructional television are: the amount of contact they think they'll have with the teacher, their perception of the relative abilities of the studio and classroom teachers, the degree to which they find instructional television boring or interesting, the nature of the televised programs they've seen in the past, and the conditions of viewing.

One of the better studies reviewed in preparation for this report regarding interactive vs. non-interactive learning situations was done by the Federation of Rocky Mountain States, Inc. (Dale, 1975). The study involved the use of communications satellites (ATS-6) to determine the significance of the availability of interaction in educational programming. The study used control groups as well as sites where the amount of interaction varied. Students at the interactive schools showed greater learning gains, as well as a more positive attitude toward the programs on the part of students located in the interactive schools.

3.2 Delivery System Alternatives

Given the above information regarding the non-relationship between different teaching and learning methods, the data regarding the use of instructional television vs. face-to-face teaching, and the value of interactive communications, it becomes apparent that there are few, if any, indicators that mediated learning situations present significant drawbacks that are not present in face-to-face learning situations from a pedagogical standpoint. If this is the case, then it is appropriate to examine the systematic constraints of the various delivery systems. It has been ADA's experience that cost is the most prominent delivery system constraint of concern to educators. Therefore, ADA has conducted a sensitivity analysis of the major communication channels appropriate for use in continuing education.

In February, 1978, ADA conducted a continuing education workshop via communications satellite (CTS) among three major United States cities. This workshop will be used as a case for this discussion. It should be noted that this workshop required students to demonstrate certain competencies in specific skill areas discussed and demonstrated during the mediated workshop. The outcome of this sensitivity analysis can be found in Figures 3.1 through 3.3.

The sensitivity analysis includes three basic models for discussion:

- Cost sensitivity to audience size (Model 1).
- Cost sensitivity to number of sites (Model 2).
- Cost sensitivity to number of replications (Model 3).

The cost sensitivity to audience size used 10, 50 and 100 students for the model (see Tables 3.1, 3.2, and 3.3). The cost sensitivity to the number of sites used 6, 12, and 24 sites to build the model (see Tables 3.4, 3.5, and 3.6). The cost sensitivity to number of replications used zero (i.e., original program only), one replication, and three replications in order to build the model (see Tables 3.7, 3.8, and 3.9).

The channels of communication used for the model were divided into three basic groups: non-real time, non-interactive; non-real time, interactive; and real time, interactive. The first general type (non-real time, non-interactive) has four communication channels: correspondence courses,

FIGURE 3.1

MODEL 1

COST SENSITIVITY TO AUDIENCE SIZE

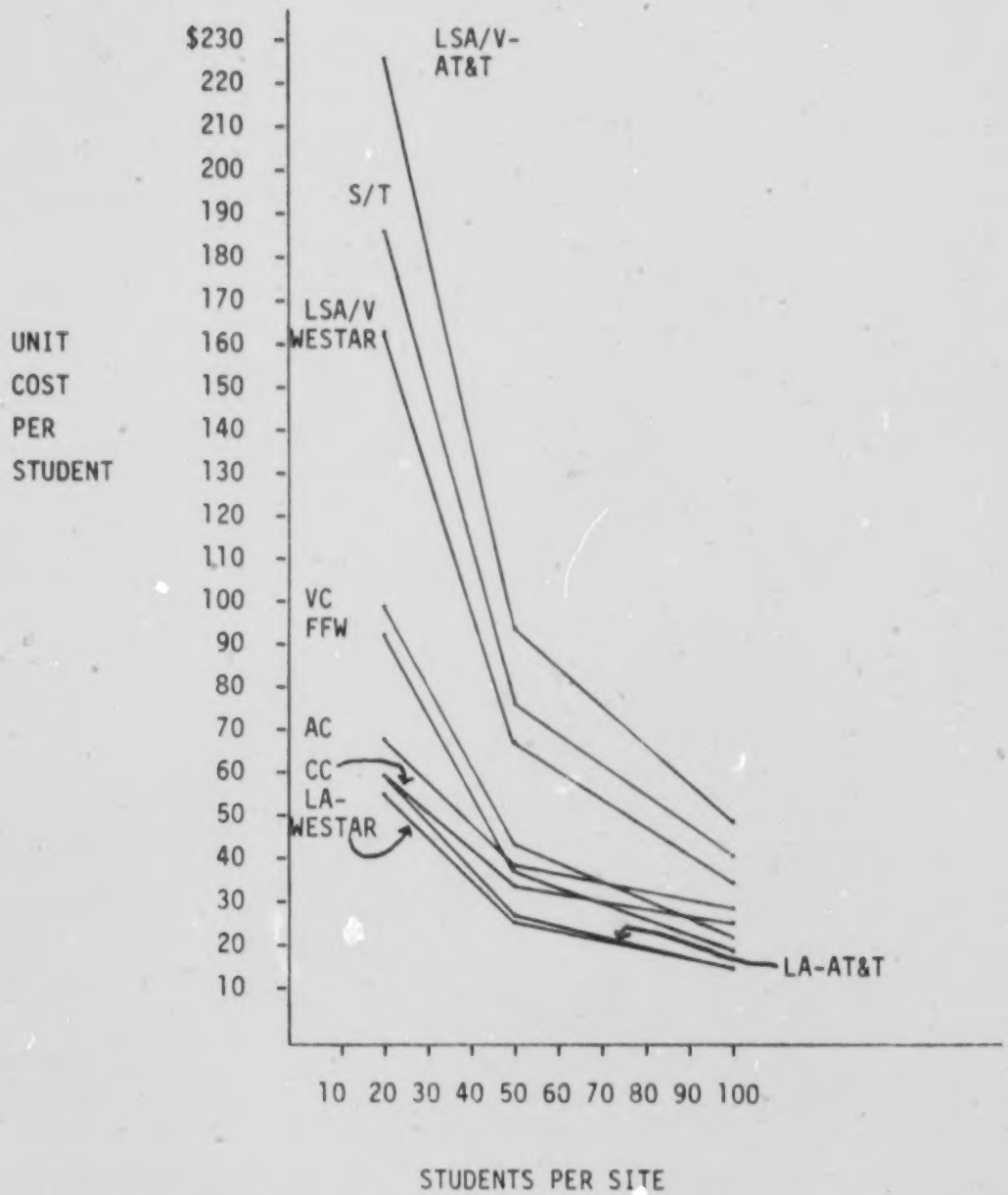


TABLE 3.1

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL I

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFV	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$5,030	$21,000	$6,215	$10,360	$5,000	$5,000	$5,000	$5,000	$5,000
DISTRIBUTION COSTS									
Duplication	$ 340	$ 300	$ 430	$ 300	$ N/A	$ 165	$ 165	$ N/A	$ N/A
Space & equipment	N/A	240	N/A	420	100	120	120	270	900
Materials distribution	190	20	120	20	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	2,750	660	115	20,740	12,460
Subtotal Distribution Costs	$ 550	$ 560	$ 550	$ 740	$2,930	$ 925	$ 330	$21,010	$13,360
INTERACTIVE COSTS									
Local facilitator	$1,200	$ 600	$1,200	$ 600	$ N/A	$ 600	$ 600	$ 600	$ 600
Live program talent	N/A	N/A	N/A	N/A	3,000	500	500	500	500
Correspondent/evaluator	250	N/A	250	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$1,450	$ 600	$1,450	$ 600	$3,000	$1,100	$1,100	$1,100	$1,100
TOTAL COST	$7,030	$22,160	$8,215	$11,700	$10,930	$7,025	$6,430	$27,110	$19,460
UNIT COST PER STUDENT	$ 59	$ 185	$ 68	$ 98	$ 91	$ 59	$ 54	$ 226	$ 162

The above is for CE delivery from Chicago to six sites: Atlanta, Dallas, Los Angeles, New York, San Francisco, Washington, D.C.
Model is for 20 students at each of the six sites; potential R.D. audience = 7,815 within 50 miles of each site.

TABLE 3.2

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL I

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFV	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	$ 900	$ 300	$ 1,280	$ 300	$ N/A	$ 360	$ 360	$ N/A	$ N/A
Space & equipment	N/A	420	N/A	750	360	300	300	690	1,350
Materials distribution	470	20	300	20	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	2,750	660	115	20,740	12,460
Subtotal Distribution Costs	$ 1,370	$ 740	$ 1,580	$ 1,070	$ 3,110	$ 1,320	$ 775	$21,340	$13,810
INTERACTIVE COSTS									
Local facilitator	$ 3,000	$ 1,200	$ 3,000	$ 1,200	$ N/A	$ 1,200	$ 1,200	$ 1,200	$ 1,200
Live program talent	N/A	N/A	N/A	N/A	3,000	500	500	500	500
Correspondent/evaluator	625	N/A	625	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 3,625	$ 1,200	$ 3,625	$ 1,200	$ 3,000	$ 1,700	$ 1,700	$ 1,700	$ 1,700
TOTAL COST	$10,035	$22,940	$11,400	$12,630	$11,110	$ 8,020	$ 7,475	$28,040	$21,210
UNIT COST PER STUDENT	$ 33	$ 76	$ 38	$ 42	$ 37	$ 27	$ 25	$ 93	$ 42

The above is for CE delivery from Chicago to six sites: Atlanta, Dallas, Los Angeles, New York, San Francisco, Washington, D.C.
Model is for 50 students at each of the six sites; potential R.D. audience = 7,815 within 50 miles of each site.

TABLE 3.3

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL I

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFV	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	$ 1,800	$ 300	$ 2,520	$ 300	$ N/A	$ 720	$ 720	$ N/A	$ N/A
Space & equipment	N/A	720	N/A	1,200	660	600	600	1,350	1,200
Materials distribution	360	20	600	20	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	2,750	660	115	20,740	12,460
Subtotal Distribution Costs	$ 2,760	$ 1,040	$ 3,120	$ 1,520	$ 3,410	$ 1,980	$ 1,435	$21,790	$13,660
INTERACTIVE COSTS									
Local facilitator	$ 6,000	$ 1,800	$ 6,000	$ 1,800	$ 600	$ 1,800	$ 1,800	$ 1,800	$ 1,800
Live program talent	N/A	N/A	N/A	N/A	3,000	500	500	560	500
Correspondent/evaluator	1,250	N/A	1,250	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 7,250	$ 1,800	$ 7,250	$ 1,800	$ 3,600	$ 2,300	$ 2,300	$ 2,360	$ 2,300
TOTAL COST	$15,040	$23,840	$16,585	$13,680	$12,010	$ 9,280	$ 8,735	$29,150	$20,960
UNIT COST PER STUDENT	$ 25	$ 40	$ 28	$ 23	$ 20	$ 15	$ 15	$ 49	$ 35

The above is for CE delivery from Chicago to six sites: Atlanta, Dallas, Los Angeles, New York, San Francisco, Washington, D.C.
Model is for 100 students at each of the six sites; potential R.D. audience = 7,815 within 50 miles of each site.

Based on 1978 "Patient Nutritional Assessment" STRATATE workshop, below are equivalent CE x personnel.

CE = Correspondence course, 50 pages
S/T = Slide/tape (audio cassette) program, 2 hours
AC = Audio cassettes, 2 hours
VC = videocassettes, 2 hours
FFV = face-to-face workshop, 5 hours
LA-AT&T = Live audio via AT&T, 5 hours.
LA-WESTAR = Live audio via WESTAR, 5 hours.
LSA/V-AT&T = Live simple A/V via AT&T, 5 hours
LSA/V-WESTAR = Live simple A/V via WESTAR, 5 hours

FIGURE 3.2

MODEL 2

COST SENSITIVITY TO NUMBER OF SITES

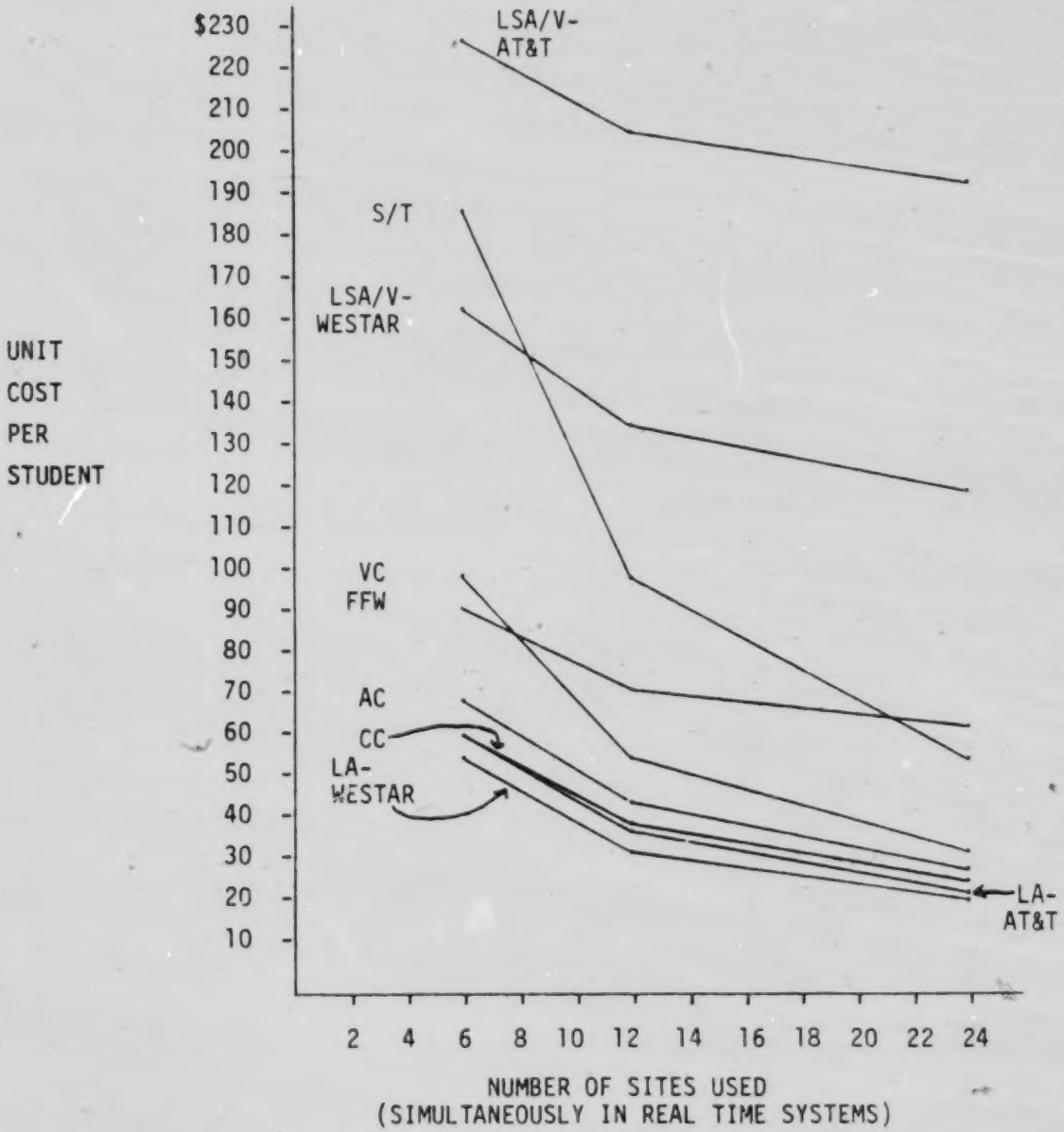


TABLE 3.4

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL 2

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFW	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	380	300	430	300	N/A	145	145	N/A	N/A
Space & equipment	N/A	240	N/A	420	180	120	120	270	900
Materials distribution	190	20	120	20	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	2,750	660	115	20,740	12,460
Subtotal Distribution Costs	$ 550	$ 560	$ 550	$ 740	$ 2,930	$ 925	$ 380	$21,010	$13,360
INTERACTIVE COSTS									
Local facilitator	$ 1,200	$ 600	$ 1,200	$ 600	$ N/A	$ 600	$ 600	$ 600	$ 600
Live program talent	N/A	N/A	N/A	N/A	3,000	500	500	500	500
Correspondent/evaluator	250	N/A	250	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 1,450	$ 600	$ 1,450	$ 600	$ 3,000	$ 1,100	$ 1,100	$ 1,100	$ 1,100
TOTAL COST	$ 7,030	$22,160	$ 8,215	$11,700	$10,930	$ 7,025	$ 6,480	$27,110	$19,460
UNIT COST PER STUDENT	$ 59	$ 185	$ 68	$ 98	$ 91	$ 59	$ 54	$ 226	$ 162

The above is for CE delivery from Chicago to six sites: Atlanta, Dallas, Los Angeles, New York, San Francisco, Washington, D.C.
Model is for 20 students at each of the six sites. potential R.D. audience = 7,315 within 50 miles of each site.

TABLE 3.5

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL 2'

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFW	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	$ 720	$ 600	$ 865	$ 600	$ N/A	$ 290	$ 290	$ N/A	$ N/A
Space & equipment	N/A	480	N/A	840	360	240	240	540	1,800
Materials distribution	380	35	240	35	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	5,500	1,320	235	41,480	23,320
Subtotal Distribution Costs	$ 1,100	$ 1,115	$ 1,105	$ 1,475	$ 5,860	$ 1,850	$ 765	$42,020	$25,120
INTERACTIVE COSTS									
Local facilitator	$ 2,400	$ 1,200	$ 2,400	$ 1,200	N/A	$ 1,200	$ 1,200	$ 1,200	$ 1,200
Live program talent	N/A	N/A	N/A	N/A	6,000	500	500	500	500
Correspondent/evaluator	500	N/A	500	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 2,900	$ 1,200	$ 2,900	$ 1,200	$ 6,000	$ 1,700	$ 1,700	$ 1,700	$ 1,700
TOTAL COST	$ 9,030	$23,315	$10,220	$13,035	$16,860	$ 8,550	$ 7,465	$48,720	$31,820
UNIT COST PER STUDENT	$ 38	$ 97	$ 43	$ 54	$ 70	$ 36	$ 31	$ 203	$ 133

The above is for CE delivery from Chicago to 12 sites: major cities/metropolitan areas across the United States.
Model is for 20 students at each of the 12 sites.

TABLE 3.6

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL 2"

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFW	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	$ 1,440	$ 1,200	$ 1,730	$ 1,200	N/A	$ 575	$ 575	N/A	N/A
Space & equipment	N/A	960	N/A	1,680	720	480	480	1,080	3,600
Materials distribution	760	70	480	70	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	11,000	2,640	470	82,960	46,080
Subtotal Distribution Costs	$ 2,200	$ 2,230	$ 2,210	$ 2,950	$11,720	$ 3,695	$ 1,525	$84,040	$49,680
INTERACTIVE COSTS									
Local facilitator	$ 4,800	$ 2,400	$ 4,800	$ 2,400	$ N/A	$ 2,400	$ 2,400	$ 2,400	$ 2,400
Live program talent	N/A	N/A	N/A	N/A	12,000	500	500	500	500
Correspondent/evaluator	1,000	N/A	1,000	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 5,800	$ 2,400	$ 5,800	$ 2,400	$12,000	$ 2,900	$ 2,900	$ 2,900	$ 2,900
TOTAL COST	$13,030	$25,630	$14,225	$15,710	$28,720	$11,595	$ 9,425	$91,940	$56,580
UNIT COST PER STUDENT	$ 27	$ 53	$ 30	$ 33	$ 60	$ 24	$ 20	$ 192	$ 118

The above is for CE delivery from Chicago to 24 sites: major cities/metropolitan areas across the United States.
Model is for 20 students at each of the 24 sites.

Based on 1978 "Patient Nutritional Assessment" STANDATE workshop, below are equivalent CE experiences:

CC = Correspondence course, 50 pages
S/T = Slide/tape (audio cassette) program, 2 hours.
AC = Audio cassettes, 2 Hours
VC = Videocassettes, 2 hours
FFW = Face-to-face workshop, 4 hours
LA-AT&T = Live audio via AT&T, 5 hours.
LA-WESTAR = Live audio via WESTAR, 5 hours
LSA/V-AT&T = Live simplex A/V via AT&T, 5 hours.
LSA/V-WESTAR = Live simplex A/V via WESTAR, 5 hours

FIGURE 3.3

MODEL 3

COST SENSITIVITY TO NUMBER OF REPLICATIONS

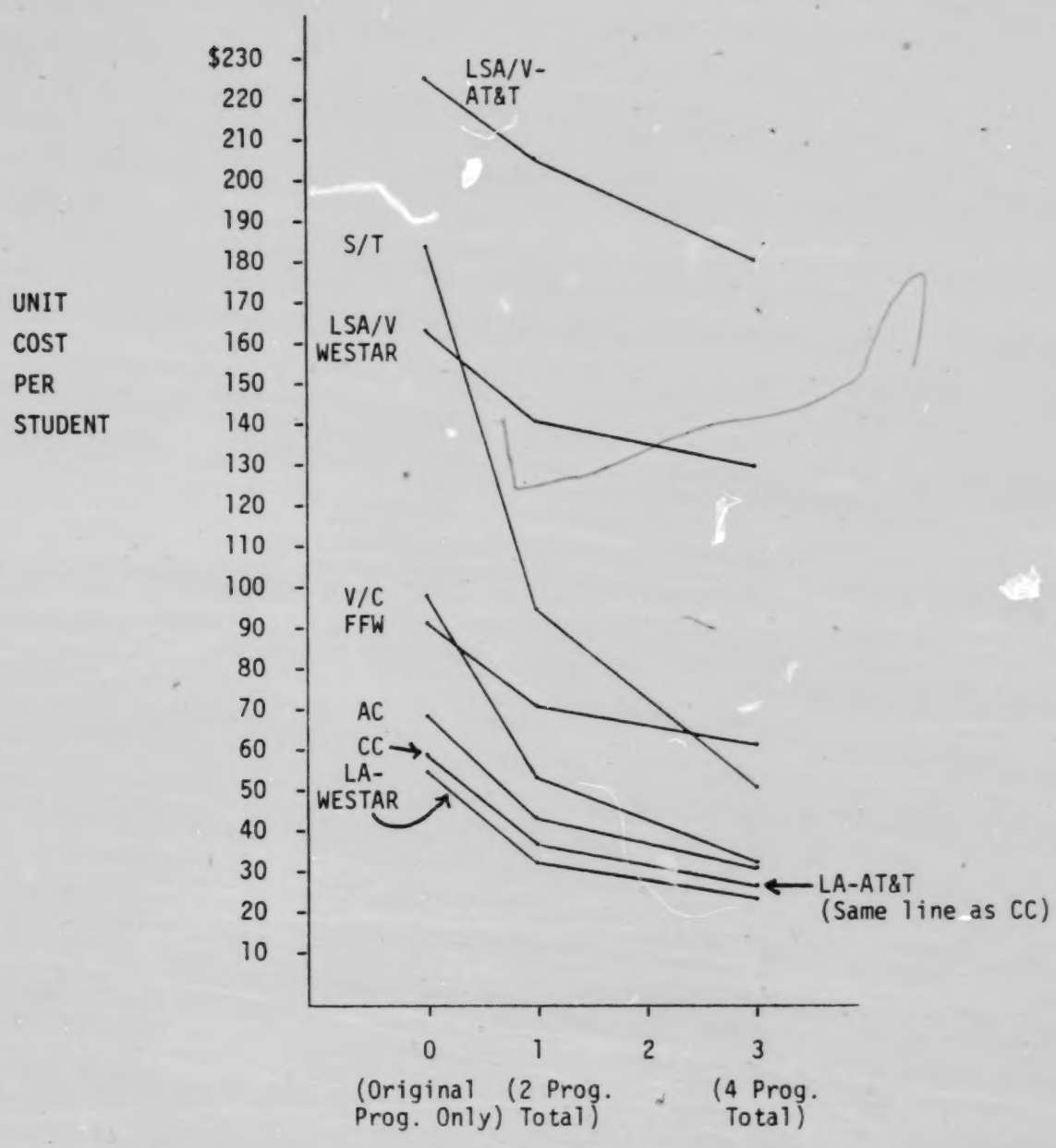


TABLE 3.7

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL 1

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFW	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	$ 360	$ 300	$ 430	$ 300	$ N/A	$ 145	$ 145	$ N/A	$ N/A
Space & equipment	N/A	240	N/A	420	130	120	120	270	900
Materials distribution	190	20	120	20	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	2,750	660	115	20,740	12,360
Subtotal Distribution Costs	$ 550	$ 560	$ 550	$ 740	$ 2,930	$ 925	$ 380	$21,010	$13,380
INTERACTIVE COSTS									
Local facilitator	$ 1,200	$ 600	$ 1,200	$ 600	$ N/A	$ 600	$ 600	$ 600	$ 600
Live program talent	N/A	N/A	N/A	N/A	3,000	500	500	500	500
Correspondent/evaluator	250	N/A	250	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 1,450	$ 600	$ 1,450	$ 600	$ 3,000	$ 1,100	$ 1,100	$ 1,100	$ 1,100
TOTAL COST	$ 7,030	$22,160	$ 8,215	$11,700	$10,930	$ 7,025	$ 6,480	$27,110	$19,480
UNIT COST PER STUDENT	$ 59	$ 185	$ 68	$ 98	$ 91	$ 59	$ 54	$ 226	$ 162

The above is for CE delivery from Chicago to six sites, one time only: Atlanta, Dallas, Los Angeles, New York, San Francisco, Washington, D.C. Model is for 20 students at each of the six sites; potential A.D. audience = 7,815 within 50 miles of each site.

TABLE 3.8

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL 2

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFW	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	$ 720	$ 300	$ 865	$ 300	$ N/A	$ 290	$ 290	$ N/A	$ N/A
Space & equipment	N/A	480	N/A	840	360	240	240	540	1,800
Materials distribution	385	20	240	20	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	5,500	1,320	235	41,480	24,645
Subtotal Distribution Costs	$ 1,105	$ 800	$ 1,105	$ 1,160	$ 5,360	$ 1,850	$ 765	$42,020	$26,445
INTERACTIVE COSTS									
Local facilitator	$ 2,400	$ 1,200	$ 2,400	$ 1,200	$ N/A	$ 1,200	$ 1,200	$ 1,200	$ 1,200
Live program talent	N/A	N/A	N/A	N/A	6,200	1,200	1,200	1,200	1,200
Correspondent/evaluator	500	N/A	500	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 2,900	$ 1,200	$ 2,900	$ 1,200	$ 6,200	$ 2,400	$ 2,400	$ 2,400	$ 2,400
TOTAL COST	$ 9,035	$23,000	$10,220	$12,720	$16,660	$ 9,250	$ 7,965	$49,220	$33,645
UNIT COST PER STUDENT	$ 38	$ 96	$ 43	$ 53	$ 70	$ 38	$ 33	$ 205	$ 140

The above is for CE delivery from Chicago to six sites: one original plus one replication of program (two different audiences of 20 students each at the same six sites).

TABLE 3.9

COST ANALYSIS OF NINE EDUCATIONAL DELIVERY SYSTEMS: MODEL 3*

DIRECT COMPONENT COSTS	NON-REAL TIME: NON-INTERACTIVE				NON-REAL TIME: INTERACTIVE	REAL TIME: INTERACTIVE			
	CC	S/T	AC	VC	FFW	LA-AT&T	LA-WESTAR	LSA/V-AT&T	LSA/V-WESTAR
PRODUCTION COSTS									
Program & evaluation development	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Diagram/slide artwork	4,000	N/A	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Studio costs	N/A	N/A	1,200	4,800	N/A	N/A	N/A	N/A	N/A
Master	30	20,000	15	560	N/A	N/A	N/A	N/A	N/A
Subtotal Production Costs	$ 5,030	$21,000	$ 6,215	$10,360	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
DISTRIBUTION COSTS									
Duplication	$ 1,440	$ 300	$ 1,730	$ 300	$ N/A	$ 575	$ 575	$ N/A	$ N/A
Space & equipment	N/A	960	N/A	1,680	720	480	480	1,080	3,600
Materials distribution	770	20	480	20	N/A	N/A	N/A	N/A	N/A
Telecommunications/travel	N/A	N/A	N/A	N/A	11,000	2,645	470	75,966	49,015
Subtotal Distribution Costs	$ 2,210	$ 1,280	$ 2,210	$ 2,000	$11,720	$ 3,700	$ 1,525	$77,046	$52,615
INTERACTIVE COSTS									
Local facilitator	$ 4,800	$ 2,400	$ 4,800	$ 2,400	$ N/A	$ 2,400	$ 2,400	$ 2,400	$ 2,400
Live program talent	N/A	N/A	N/A	N/A	12,000	2,000	2,000	2,000	2,000
Correspondent/evaluator	1,000	N/A	1,000	N/A	N/A	N/A	N/A	N/A	N/A
Subtotal Interactive Costs	$ 5,800	$ 2,400	$ 5,800	$ 2,400	$12,000	$ 4,400	$ 4,400	$ 4,400	$ 4,400
TOTAL COST	$13,040	$24,680	$14,225	$14,760	$28,720	$13,100	$10,925	$86,446	$62,015
UNIT COST PER STUDENT	$ 27	$ 51	$ 30	$ 31	$ 60	$ 27	$ 23	$ 180	$ 129

The above is for CE delivery from Chicago to six sites: One original plus three replications of program (four different audiences of 20 students each at the same six sites).

Based on 1978 "Patient Nutritional Assessment" STARDATE workshop, below are equivalent CE experiences:

CC = Correspondence course, 50 pages.
S/T = Slide/tape (audio cassette) program, 2 hours.
AC = Audio cassettes, 2 hours
VC = Videocassettes, 2 hours.
FFW = Face-to-face workshop, 5 hours.
LA-AT&T = Live audio via AT&T, 5 hours.
LA-WESTAR = Live audio via WESTAR, 5 hours.
LSA/V-AT&T = Live simplex A/V via AT&T, 5 hours.
LSA/V-WESTAR = Live simplex A/V via WESTAR, 5 hours

slide-tape programs, audio cassette study kits, and videocassette study kits. The second general type (non-real time, interactive) has only one communication channel: face-to-face workshops. The third general type (real time, interactive) employs four communication channels: live audio interaction via the telephone system, live audio interaction via a communications satellite (WESTAR), live simplex audiovisual programming with audio talkback via the telephone system (i.e., in both the outgoing program and the return), and live simplex audiovisual programming via communications satellite (i.e., the broadcast program is carried via WESTAR with the audio return link via the terrestrial system).

There were three major components examined in the direct cost of each communication channel studied: production costs, distribution costs, and interactive costs. The production costs included the development of the program itself, the graphic artwork necessary, studio costs (if relevant), and the production of a master copy. The distribution costs included: the actual duplication of the master in sufficient quantity for the cost model, the space and equipment necessary to stage the program itself, the cost of the material's distribution, and the telecommunications or travel costs. The interactive costs included: a local program facilitator, live program talent (if necessary), and a correspondent or evaluator to assess the students' performance. Of necessity, several assumptions had to be made in the development of these cost models and the conduct of the sensitivity analysis. For a discussion of the assumptions made and the sources of data, please refer to Appendix V.

From a review of the three models, certain tentative conclusions can be drawn:

- In all cases, live audio interactive programs via communications satellite were least expensive.
- For mediated audiovisual programs, the communications satellite was less expensive than the use of the terrestrial system.
- The unit cost of live interactive programs is most sensitive to an increase in the number of students per site and least sensitive to an increase in the number of sites within this limited sensitivity analysis.
- Of the non-real time, non-interactive communication channels, the correspondence courses are always the least expensive, and slide-tape programs tend to be the most expensive.
- In most cases, the audio cassette programs are less expensive than the videocassette kits. However, the videocassette programs are less expensive than the audio cassette study kits when the number of students per site goes beyond 70. The rationale for this is that the audio cassette programs were designed for individual listeners while the videocassette programs were designed for viewing in groups. Therefore, at a certain point (beyond 70 students) the videocassette program has a lower unit cost than the audio cassette program, even assuming the increased number of facilitators and monitors necessary for program operation.

- For programs which require audiovisual interaction, the face-to-face workshop has a lower unit cost than the mediated workshops which provide real time interaction via either the terrestrial system or the communications satellite.

The above discussion of the sensitivity analysis of these cost models is limited only to the issue of unit cost. ADA knows of no study which is able to assert the cost-effectiveness of any of these communication channels. The earlier discussed work of Dubin and Taveggia indicates that this issue will not be answered outside consideration of the students' behavior. That is to say, the answer to the cost-effectiveness issue will only be found in a study which can vary the communication channels while holding the students' characteristics and behavior constant.

In considering the various delivery alternatives, there are several drawbacks attributed to the widespread distribution of "packaged" learning programs. One researcher (Lonsdale, 1975) found three major drawbacks to the bicycling of videotapes:

- Limitation of equipment and videotape stock at local sites severely limited the number of program types which could be stored or scheduled at any one time.
- Rate of equipment malfunction was a great limitation in their materials distribution service.
- The final limitation was the problem with copyright restrictions; this limited severely the amount of time the sites could retain taped educational programs.

Schramm and Chu also address this issue:

> "It becomes a major problem to have films available and deliver then on call over a large area and to many schools; for such coverage, television will probably have lower unit costs, as well as the advantage of being live and being changeable more easily in response to feedback from the classroom and to curricular alterations."

In addition, the work of Chu and Schramm, as well as the work of Dale, indicates that the need for interaction between the student and instructor is significant. Thus, if one limits consideration only to the interactive programs, the choice is limited to face-to-face workshops, mediated audio only, and mediated audiovisual with audio talkback.

There are limitations to the face-to-face workshop:

- Faculty selection is difficult. Not many professionals are willing to conduct a "road show" in the middle of their careers in order to present a program at a large number of sites around the nation.
- The professional community participating in these kinds of CE programs usually need to leave their place of employment, as they're generally held during the work week.

- Participants are denied the opportunity to interact with colleagues from other parts of the nation during the course of the CE experience.

For some content areas these issues may be moot; for others, they may be significant.

> "The obstacles of travel distances over 50 miles and expenses involved in overnight lodging can be minimized by multiple presentations in several locations throughout a state. Unfortunately, this format is more costly to program presenters than developing programs for presentation at a single central location. Therefore, other methods of information diffusion should be developed as well." (Upp, 1978)

It should be noted that the difference in unit cost between live interactive audio and audiovisual programs which are communicated via satellite will, in the near future, be greatly reduced. At the present time there are various techniques (e.g., time-division multiple-access and digitalized video compression) which will make the cost of video transmission comparable with current audio transmission costs. Also available are certain techniques which allow for a modified video transmission to be conducted with the same transmission charges as for audio (e.g., freeze-frame television and such peripheral hardware as the electronic blackboard developed by AT&T).

During the course of the planning period for this proposal's development, ADA, with consultation from the Division of Computing Sciences at the Ohio State University, investigated the option of including computer-assisted instruction (CAI) as one of its delivery types. At the present time, it is ADA's opinion that this does not represent a viable option for use with communications satellites. In order to conduct CAI, a communications satellite which can be accessed intermittently at the user's convenience is required. This condition eliminates the consideration of any of the experimental satellites presently available (ATS-1, ATS-3, ATS-6, and CTS). This is due to the fact that each of these communications satellites has a long "queue," thus placing very finite limitations on the use of the spacecraft. The commercial satellites available could be utilized for this purpose. However, the currently available transceivers which can access the commercial satellites are in very limited locations, thus requiring rather extensive terrestrial hookups (e.g., microwave) in order to access them. The cost of these "last mile" connections would be so expensive as to overshadow any cost saving of the use of satellite vs. terrestrial networks for the relay of transmissions.

The current terrestrial network available for CAI communication offers a far more attractive unit cost than that available by communications satellite. While this situation may not be true for one-way data communications, it is at the present time true for two-way data communications used on an intermittent basis. Again, as with audiovisual communication, the availability and cost of this type of transmission will be far more

favorable in the very near future (5-10 years); however, at this point in time, ADA has decided not to pursue the transmission of computer-assisted instruction programs for continuing education purposes via communications satellite. As an outgrowth of this consideration, ADA has initiated the development of plans to investigate CAI for continuing education under a different solicitation by the federal government for such projects.

3.3 Communications Satellite Alternatives

The purpose of this section is to present the reader with information regarding the various communications satellites available which are relevant to the general scope of ADA's proposed delivery of continuing education.

ATS-1 and ATS-3

The basic characteristic of these two satellites is their ability to receive and transmit interactive voice or data communications. Both satellites utilize the VHF frequency band in both their up- and downlinks. The ATS-1 is located over the Pacific and the ATS-3 over the Atlantic Ocean; both are fixed in geosynchronous orbits. ATS-1 was launched in 1966 and ATS-3 in 1967; both have outlived their expected life. However, both of these satellites do still function and provide potential communication vehicles for either voice or data transmissions. The quality of voice transmissions on both satellites is poor due to frequent signal fade. The quality is acceptable for data transmission. This capacity, in addition to their relatively low usage, makes them attractive vehicles for narrow-band transmissions. They have used to augment ATS-6 in order to provide dual voice communication. Of significant note: the equipment to access either of these two satellites is of very low cost. They are reported (Ogden, 1977) to be almost fully scheduled and operating on only one of their original four channels.

ATS-6

The major characteristic of ATS-6 is that it can provide one channel of high quality television. ATS-6 can utilize L-, S-, and C-frequency bands. It major limitation is the expense of its video uplink stations (between $100,000 and $250,000 depending upon the frequency band utilized). At the present time there are 120 small earth stations currently owned by the U.S. Government (NIE, NIH and VA). The majority of these earth stations are in the State of Alaska, the Rocky Mountain Region, and the Appalachian Region. Although there are a variety of different uplink frequency bands which can access ATS-6, they each present some difficulties. The L-band requires relatively inexpensive access equipment, but its low power constrains the geographic areas from which the user can operate. The S-band capacity is relatively inexpensive to use, but there is significant possibility of interference with U.S. Air Force communications in many areas of the United States. The C-band capability has the

advantage that the user can uplink from almost any point in the U.S.; however, utilizing this band has a high potential for interference with microwave systems. The size of the footprint cast by ATS-6 significantly limits the size of the audience (700 to 900 miles long and approximately 300 miles wide; see Appendix VI).

According to a recent report (Ogden, 1977) the spacecraft suffers various technical difficulties: its time available for broadcast use is limited to three to six hours per day due to power shortages; it has a predicted operational life expectancy through the end of 1979; and since the guiding mechanism is not performing adequately, relatively long periods of time (30 minutes) are required to reposition the satellite.

CTS

The three key characteristics of CTS are: ability to transmit two-way interactive audiovisual communication, access with relatively inexpensive equipment, and a very broad footprint which can cover approximately one-third of the United States (see Appendix VI). CTS is the first communications satellite to utilize the Ku-band. The dimensions of the footprint and the low cost of the earth stations are both related to the fact that the CTS is high-powered enough to utilize the Ku-band; it transmits at 12 GHz and receives at 14 GHz. Although the projected numbers and locations of CTS earth stations are subject to frequent revision, it is estimated that there are approximately 80 earth stations in the U.S. capable of receiving signals from CTS. Approximately 15 of these are capable of two-way audiovisual communication. In addition, there are also several mobile earth stations (TETs and PETs) which access CTS for short-term experiments and demonstrations. The two largest holders of CTS receive-only earth stations are the Veterans Administration and the Southern Educational Communications Association (SECA). The Public Health Service and NASA are the two largest operators of earth stations with uplink capability.

ADA has had the opportunity to experiment extensively with educational broadcasts via CTS. Based on its experience, ADA has found CTS to perform very well. However, one of the major constraints in the use of CTS is the scheduling of appropriate time. Because CTS has only two transponders and is mainly used for interactive television programs in either simplex or duplex mode by the several experimenting organizations, there is very little time available. Scheduling for the use of CTS must be done far in advance. Another shortcoming experienced by ADA has been the fact that the CTS earth stations are primarily located in the western United States, which has made it impossible to direct any programming toward the northeastern states. An obvious exception to this, of course, is the network of CTS receive sites located in the southeastern U.S. controlled by SECA. ADA has not yet made use of this option. During the remainder of FY-78, ADA will be using its own resources to conduct further communications satellite experiments with CTS using the 29 earth stations within the Veterans Administration's network in the eleven western states. For further information regarding ADA's experiments with CTS, "STARDATE," the reader should refer to Appendix VII.

One major "problem" with CTS which has not impacted on ADA's experiments with CTS is the fact that the satellite was designed for experimental purposes (i.e., it is not a "broadcast" satellite). The implication of this is that there are very few redundancy systems built into either the spacecraft itself or the earth station networks capable of receiving and transmitting via CTS. This presents the experimenter with a rather significant problem. After designing and promoting a program and then convening an audience of students, if the system has a failure there are no backup systems in order to continue transmission. The net effect of this is that the experimenter must send the student group off with a rather jaundiced view of satellite communications. Although the current users of CTS realize that it is an experimental satellite, the participants are not necessarily prepared to discount technical difficulties "because it's an experimental satellite." The student sees television and assumes that, like in his/her home, it works. Thus, when the satellite has a failure there is often a fair amount of resentment.

It is not ADA's intent to cast a shadow over the future potential of CTS, but it is also realistic to appreciate the present and potential difficultjes with this particular spacecraft. At a conference held in October by the Public Service Satellite Consortium, it was reported (Odgen, 1977) that one of the transmitter's power supply was failing: the pods responsible for heating the transmitter which allowed the use of the low-powered transponder were freezing up after an eclipse. In November, the Principal Investigator for this project had an opportunity to attend the HERMES Symposium convened by the Royal Society of Canada in Ottawa, Ontario. At that meeting, Anthony Calio, Associate Administrator for Applications, NASA, presented a paper highlighting various technical difficulties with CTS. Among them were:

- Telemetry transponder had degraded;
- Backup system was not functioning;
- 200-watt tube temperature was getting too high at certain times when used for extended periods;
- Charged particles were forming on the solar array panels which were discharging at odd intervals, causing a reduction in their ability to function;
- Some degradation of the batteries;
- Earth attitude control was not operating correctly at all times; Canadian telemetry problems were requiring the United States to control the positioning of the spacecraft on an intermittent basis.

One of the more common points made when discussing the potential life expectancy of CTS is in regard to the amount of fuel left on the spacecraft. At a recent technical site visit made by the Principal Investigator to the NASA-Lewis facility, it was reported that there are approximately eight years of fuel available. This fuel is contained within two cells, so that even if one should deteriorate the balance of fuel would be sufficient for four years of operation. However, there is an additional constraint to CTS' future life expectancy of which ADA has not been aware.

The positioning of the transponders is controlled by rack-and-pinion mechanisms known as actuators. Both the U.S. and Canada have been assigned a fixed number of actuator degrees for their use in manipulating the transponders. Ideally, once the respective party has used up its actuator degrees, it has essentially completed its term of experimentation with the spacecraft. According to one source at the NASA-Lewis facility, there are approximately two years' worth of actuator degrees left, based upon the current rate of the U.S.' manipulation of the transponders. Certainly this prediction needs to be considered, along with the likelihood that the engineering life of the mechanism may in fact be longer, and that if the U.S. had used up all its actuator degrees it could possibly "borrow" some from the Canadians' assignment (assuming they have not manipulated the transponders at the same rate as the U.S.). However, based on this information, ADA would not wish to design a plan of use for CTS which would extend beyond the end of calendar year 1979.

SYNCOM IV

The case of SYNCOM IV has been an interesting one. At this point in time, no such satellite exists, as it is still in the planning stage. The Hughes Aircraft Company is designing a communications satellite which is "space shuttle optimized." That is, the advent of the space shuttle will require new techniques for the launching of communications satellites from the bay of the shuttlecraft as opposed to the previous mode which was based on the use of earth-launched rockets. Because Hughes Aircraft will wish to demonstrate its ability to successfully launch and position a geosynchronous satellite from the space shuttle, it has intended to launch a low-powered, relatively unsophisticated (by current standards) communications satellite into orbit.

During 1977 Hughes Aircraft initiated discussions with the Public Service Satellite Consortium in order to upgrade the planned satellite to meet the needs of the public service community. The constraint placed on these negotiations by Hughes was that the specifications for the revised satellite design would need to be made available by January 1, 1978. This was estimated to be the last point in time Hughes could make engineering changes before the initiation of the spacecraft's fabrication in preparation for a launch on one of the last two space shuttle flights (late 1979 or early 1980). The negotiations involved a large number of federal agencies, including the National Institute of Education, in a series of meetings during the late fall and early winter of 1977.

According to ADA's information sources, the federal agencies and PSSC were either not able to agree on or legally commit to payment for a revised spacecraft design. The net effect of this is that Hughes will continue with its original plans to launch SYNCOM IV as a relatively unsophisticated communications satellite. One change precipitated by the discussions was the addition of one additional transponder (i.e., from one to two transponders) due to the interest of the State of

California in leasing an entire transponder for an extended period of time. The originally planned transponder on the spacecraft will be dedicated to the use of the Howard Hughes Medical Institutes, which own Hughes Aircraft Company.

At this time, planning is underway to install a network of earth stations at 13 major medical centers throughout the United States. The system is expected to be installed and operational one month after the space shuttle launch of SYNCOM IV; that is, this network is expected to be available for use by February, 1980. Hughes Aircraft will install the network for the Medical Institutes parallel to their fabrication of the communications satellite. Therefore, the network is expected to be in place and ready for use as soon as the satellite is operational. Hughes Aircraft personnel are currently conducting a study of possible user requirements, including collection of data on video, voice and data use of the system, simplex vs. duplex usage, volume of hours, types of use, etc.

SYNCOM IV is expected to have an 8 to 10 year life expectancy. The spacecraft will have an ERIP of 34 dbw, enabling it to broadcast the entire continental United States (see Appendix VI). The earth stations will be capable of receiving a 50 db television signal. These earth stations will be able to receive one color TV channel and three audio channels. The audio channels will be used for program audio, a talkback system, order wire, and data transmission. The channels will be able to handle data transmission at the rate of 56 kb.

In summary, all indications are that the Hughes Aircraft Company will launch its satellite. If that launch is successful, there will be a network in place which could be used by public service organizations such as ADA. At this time ADA has initiated discussions with Hughes Aircraft personnel for the use of this network; although the prospects are tenuous, they are also favorable.

Public Service Communications Satellite (PSCS)

For some time the public service community has been encouraging NASA to consider continued involvement in the development of experimental communications satellites oriented toward the public service user community's communication needs. This has presented NASA with certain difficulties regarding its specific mission. It is not within the mission of NASA to become involved in the development of a service involving an operational system. However, there appears to be a need to create an environment which would lead commercial carriers to the point where they could provide for the public communication needs of this community. There apparently exists some need for market aggregation and definition in order to attract the private carriers to the public service communications market, which is seemingly a relatively "high risk." As one report (ECON, 1977) has stated:

"The NASA PSCS is a pre-operational or demonstration system. If the PSCS is successful in demonstrating the utility of improved communications services, it is anticipated that operational requirements for these services will be developed by the users. When the market uncertainties have been sufficiently reduced, it is anticipated that the operational systems to deliver these services will be provided in the public or private sectors of the economy."

Whether or not the PSCS becomes a reality is extremely uncertain at this time. If the project becomes a reality, the form it will take is also equally uncertain. It is possible that NASA may wish to design and launch an additional experimental communications satellite itself, or it is equally possible that NASA could contract with a commercial carrier(s) to provide a certain type of service to the public service community.

Certainly, the strength of NASA's interest is evident. In early March of 1978 there was a Request for Information (RFI) initiated by NASA-Lewis which was sent to the common carrier community for response. The following statement was included in the introduction to that RFI:

"The information requested is to be used for planning the use of carrier services by public service communication users. It is anticipated that as a dialogue between the users and suppliers develops and the requirements become firm, requests for service offerings will follow."

However, the task of this report is to plan for a demonstration project to be conducted between FY-78 and FY-81; therefore, the degree of uncertainty surrounding the PSCS negates any interest ADA may have in that alternative for the purposes of this demonstration project.

WESTAR

Western Union owns and operates two satellites (WESTAR I and WESTAR II) at the present time, providing the following services to the continental United States plus Alaska and Hawaii (see Appendix VI):

- Voice grade channels in single or group channels.
- Alternative voice/data channels (14 kHz or 48 kHz).
- Data-only channels from 75 b/s to 1.5 mb/s.
- Wide-band channels with band widths of 48 kHz to 1.2 MHz.
- Video transmission using transponders capable of handling up to 36 MHz band width.

The WESTAR satellites were launched in 1974 and operate on a geosynchronous orbit above the equator. Each satellite has 12 transponders with a design life of seven years. Western Union has been awarded a major contract from NASA for the operation of four satellites broadcasting in the Ku-band. At the present time, this project is known as, "Advanced WESTAR."

The WESTAR uplinks are located in New York, Chicago, Dallas, Los Angeles, San Francisco, and Washington, D.C. There are a total of 20 metropolitan areas which are capable of receiving video via WESTAR. At this time, Western Union has also filed with the FCC to share the Public Broadcasting System earth station network, which could make WESTAR service available to almost all major U.S. cities.

The ADA Principal Investigator did meet with Western Union personnel responsible for the marketing of video services during the course of the planning project. At that time, the various tariffed services and their rates were explained. It is interesting to note that the initial reaction of ADA to the tariff rates was that they seemed rather low. It wasn't until later, while conducting studies of various satellite services, that ADA became aware of the "true costs" of the use of a commercial communications satellite. The satellite transmission costs are only one segment of the total transmission costs. The total costs also involve the head-end and the tail-end links to the carrier's earth station.

For example, say ADA were to use a production study at the University of Illinois in downtown Chicago and wished to communicate that program via WESTAR. ADA would need to use either a microwave link or lease an audio-visual grade line from AT&T to get the signal from the studio to Western Union's earth station in Lake Geneva, Illinois (approximately 50 miles north of Chicago) in order to transmit via WESTAR to some other point. At the receive point there is not only a charge per earth station for the receive signal, but also the additional cost of transmitting the signal from the receive earth station to the locale of the convened audience. The reader will note from the earlier cost sensitivity analysis (subsection 3.2; see Appendix V for specific data regarding transmission costs) that these charges are quite substantial. These tail- and head-end costs tend to be necessary at all earth station locations operated by commercial carriers because they do not maintain a studio facility at the earth station itself. The earth station functions only as a receive and switching device; it cannot be used as a point to convene a student audience.

This is a rather different case than with the experimental satellites, where the earth stations tend to be located on the property of institutions which have space for the convening of an audience, thus obviating the need for local transmission charges. One reason for this difference is that the commercial carrier satellites use band widths which are rather crowded in the urban areas and, therefore, must locate their earth stations in the outlying community. An experimental satellite such as CTS uses the Ku-band which currently is not heavily used, and therefore the earth station may be located in the urban area itself.

The major potential of WESTAR for ADA's purposes is that it has leased four transponders to the Public Broadcasting System for the interconnection of its 270 stations throughout the U.S. This contract with Western Union is for a seven-year period, with options for two four-year extensions (Smith, 1978). With the Public Television Satellite System (PTSS) there

is the possibility of the sharing of facilities for non-broadcast services by the public service community. This would require public service users purchasing time separately from Western Union; however, reception by the PBS stations would be at chosen points.

ADA had an opportunity to participate in the initial planning session between the public service community and the Corporation for Public Broadcasting which was held on March 14, 1978. Three major advantages to the use of the PTSS are:

- There would be no charge for reception at the local PBS earth station. If one were to use a WESTAR receive site, there would be an additional charge per unit of time for the receive station in each location.
- PBS stations in the local communities have facilities for the convening of groups of people as would be necessary in the delivery of CE via satellite to a local community. This is not the case at a Western Union receive facility.
- The cost for the use of the PBS studio facility at the local level is likely to be more reasonable than that charged by some other enterprise. It should be remembered that the PBS facility will have not only space to convene an audience but also the necessary signal display equipment (e.g., video monitors, etc.).

RCA American

RCA American owns and operates two communications satellites (SATCOM I and II) which were launched in 1976 (see Appendix VI for footprint map). RCA, Inc. has a long history in broadcasting. This is reflected in the distinctive character of RCA American and its video orientation. Both SATCOM I and II have 24 transponders, each of which has a usable band width of 34 MHz. The RCA satellites operate in the 4/6 GHz band.

RCA American has three types of rates which are basically comparable to the tariff rates of Western Union. They are:

- Protected - which indicates that you have an assigned transponder for your video program; in the event of a system failure, a second transponder has been assigned to replace the first.
- Unprotected - this provides the user with an assigned transponder from which the user cannot be preempted, but there is no redundancy system in the event that the assigned transponder fails.
- Preemptable - the user is assigned a specific transponder for use, but in the event a "protected" customer needs to be switched, the preemptable customer can be "bumped."

At the present time, there is so much unused capacity on the RCA satellites that it is not likely that a preemptable or unprotected customer should have any problem. In the event that a customer is preempted, RCA is not able to charge anything for its services; therefore, it's in the best interest of RCA to place even the preemptable customer on an alternative transponder, in the event that this is necessary. The Principal Investigator was told at a meeting with RCA American personnel that it has never been necessary to preempt a customer to date due to technical failure.

There are basically four options available to the potential user of RCA American:

- The user could uplink at an RCA earth station and be received at one or more remote RCA earth stations. The model here is basically the same as that outlined for the use of WESTAR (above).

- The user could uplink via an RCA earth station in one of the six major cities and then be received at one of approximately 300 cable systems throughout the U.S. The cable networks have purchased a large number of receive-only earth stations for SATCOM due to the interest of their customers in receiving programs brokered by such firms as Home Box Office. In other words, RCA does not deal directly with the "second generation customer" (i.e., the cable station), but with Home Box Office for the broadcast of their program. In turn, Home Box Office sells their programming services to the local cable station who purchases the necessary hardware to receive the RCA transmission. Because many of the cable systems have a dedicated channel for public service use (this exists in communities that have over 3,500 subscribers), it could be possible to transmit a program via RCA and be received by a local cable network for open broadcasting in the local community. A variation on this alternative would be to block the cable transmission at the local level and convene an audience at the cable TV station's facility. It should be noted that this alternative grows more interesting as more and more cable stations acquire the facility to receive RCA American transmissions; by the end of 1978 there is expected to be approximately 350 cable stations which are capable of receiving RCA-transmitted programs.

- At this time, RCA is undergoing negotiations with a major hotel chain to install earth stations throughout its entire chain. One service the hotel chain will offer will be teleconferencing. This is a natural outgrowth of the meeting facilities already provided by motel and hotel chains throughout the U.S. This option totally eliminates the local or tail-end charges for the microwave of a program from the RCA earth station to the public service organization's facility because the earth station would be located at the hotel.

- The fourth and last option is for the public service user to purchase its own earth stations for RCA transmissions. There is currently available a 15-foot dish receive station which costs about $20,000. If the system is purchased without certain redundancy components the price is reduced to $16,000 when purchased in quantity.

It is expected that there will be more developments of interest to the public service community regarding RCA within the next three or so years. During the course of the proposed project ADA will continue to monitor the progress of the above alternatives for possible use.

Satellite Business Systems (SBS)

Satellite Business Systems is owned by a partnership of Aetna Casualty & Surety Co., Comsat General Corporation, and International Business Machines Corporation. SBS will have two satellites operational in 1981 which will offer service to the continental United States in the 12 and 14 GHz bands (see Appendix VI). The outstanding characteristic of the SBS operational plan is that it will offer a complete private-line communications package. Because all communication via an SBS network will be digitalized, the user has a great deal of flexibility in terms of the specific forms of communication chosen. In other words, the user of an SBS network does not buy a voice channel, or a data channel, or a video channel. The user will buy or lease the equipment necessary to transform the communication mode used to a digital signal, a small locally placed earth station, and a given amount of band width on the spacecraft. The signal can then be received at any one of the user's private earth stations throughout the U.S., at which point the digital signal is, if necessary, reconstituted to an analog display.

The value of converting all of the communication formats to a digital signal cannot be overstated. This transformation of an analog signal allows the communications system to employ such techniques as time-division multiple-access (TDMA) and various compression techniques, both of which provide far more efficient use of the satellite's transponders. At the present time, there is one tradeoff. The presently planned SBS system cannot deliver full-motion video. However, it can provide freeze-frame video at speeds up to approximately one frame per second. The argument regarding the need for full-motion video is a timeless one. ADA has no answers to the issue. However, ADA is sufficiently interested to undertake a series of experimental broadcasts in various freeze-frame formats within the proposed project in order to determine student acceptance of freeze-frame video in a CE format. Because of the narrow-band requirements of freeze-frame video, it is considered by ADA to be too attractive an option not to give serious consideration.

Because this private-line communication package will have a substantial purchase or lease cost attached to it, ADA does not foresee any public service organization by itself as a customer of SBS. However, there are three probable scenarios which could make available this sophisticated communications system to the public service community:

- A consortium of public service users could jointly lease or purchase a compromise network which would meet most of the needs of all of the parties.
- A private firm could invest the capital in creating a network and marketing its use to the public service community. This model would be similar to the broker role played by the Robert Wold communications firm which subleases capacity on one of the commercial satellites.

- An organization which has already decided to become an SBS customer could realize that it has more capacity that it will require for the short-term future and lease a prescribed amount of band width and access to its earth station facilities to a public service organization. This organization could be either a private corporation or (more likely) a federal agency. One example of a somewhat related situation is already in existence. ADA has a working agreement with the Veterans Administration to share the use of its earth stations for CTS which are located in the 11 western states. The VA made the necessary financial commitment to purchase and install a communications satellite network for experimental purposes. Because of the limited access to CTS, the VA does not use more than a small percentage of its capacity. It's not unlikely that a federal agency like the VA would become a customer of SBS in the future, realize that it has excess capacity and decide to share that with one or more other organizations which have compatible goals and objectives. For this reason, ADA intends to carefully observe SBS' marketing activity during the course of this proposed demonstration project. If a favorable opportunity such as described above should present itself, ADA intends to be in a position to make use of it.

3.4 Methodological Options

ADA's interest in the proposed project to be funded by NIE is limited to the development of a prototype service delivery network. It is not ADA's intent to design an operational system immediately, nor is it to try and maximize the number of dietetic practitioners receiving continuing education under this project. It is ADA's perception of NIE's mission that the Institute wants to conduct an investigation into the delivery of educational services via communications satellites in order to be able to formulate federal policy for later governmental participation in this area. In response to this perceived mission of NIE, ADA proposed to include a strong evaluation component in its proposed effort. There are various methodological alternatives available for ADA's consideration.

Certainly the literature is full of researchers who are proponents of the classical experimental design for any investigation which attempts to arrive as some reasonably true or valid finding. One of the more classic examples:

> "This chapter is committed to the experiment: as the only means for settling disputes regarding educational practice, as the only way of verifying educational improvements, and as the only way of establishing a cumulative tradition in which improvements can be introduced without the danger of a faddish discard of old wisdom in favor of inferior novelties." (Campbell, 1963)

In the same work Campbell goes on to explain the philosophical rationale for such a strong statement. At the root of his statement is a basic

acceptance of the Humean philosophy of science stating the irrationality of using a deductive proof for what is an inductive law. Basically, it is Campbell's contention that an experimenter can never actually state that it has proven a theory; rather, the experimenter's effort is directed toward attempting to disprove a theory (e.g., a null hypothesis). Campbell states, "the results of an experiment 'probe' but do not 'prove' a theory."

Campbell is not alone in his strong feelings about classical research design for evaluation. Suchman makes it quite clear that he is, for the most part, in agreement with Campbell:

> "Thus, from the beginning, we would like to make it clear that we do not view the field of evaluation as having any methodology different from the scientific method; evaluation research is, first and foremost, research and as such must adhere as closely as possible to currently accepted standards of research methodology." (Suchman, 1967)

Given the strong statements noted above by individuals who are major pillars of the evaluation research community, one is in a rather difficult position when considering methodological alternatives. Although one wants to find the correct answers to a question, one is often constrained by policies, costs, time, etc. from undertaking significant research efforts. Further investigation of Campbell and Suchman tends to indicate that there is some room for compromise. It should be noted that the work of Campbell cited above includes in the title not only experimental designs but also quasi-experimental designs; the reason for this, as Campbell makes quite clear, is that there are situations in which it is difficult or impossible to conform to such a hard standard of research design as that imposed by the scientific method.

In fact, Campbell does make an observation regarding the two major types of experimentation conducted in the field of education. He characterizes them as research which is methodologically sophisticated and "correct," which is implemented by an outsider, and which probably is incapable of stimulating systemic change and the "action research" accomplished by program administrative personnel themselves. He notes that there is something of a dilemma presented here; on one hand, one may be methodologically correct and capable of making statements regarding truth, but on the other hand, one may be using a non-methodology which is compromised according to the environment in which it is employed. As a possible alternative, he suggests that the initial subject of the research come from the practitioner or administrator and that the creation of the research design be left to the specialist. This compromise may solve some problems regarding the actual personnel involved; however, it does not necessarily provide a flexible research methodology to address the actual research question in a practical manner.

Edward Suchman's treatment of the need for flexibility in research design is far more palatable. He seems to recognize the existence of demonstration programs and in fact has posed a functional system of categories

for these programs. For Suchman, demonstration programs are divided into either pilot, model, or prototype programs. Each of these represents a stage in development of an investigation and each requires different degrees of sophistication in research design. The "pilot program" is characterized as a "trial-and-error" period which is, for the most part, exploratory. In such a program the researcher is looking for a great degree of variation; this allows him/her to adapt to some of the changes programs inevitably require in their formative stage. The "model program" represents a stage at which the researcher has selected the major variables of interest and has had an opportunity to be quite specific in the selection of program objectives. However, at this early stage the researcher wants to implement the program in a situation that maximizes his/her chance for examination of the program's effect (i.e., a situation where the researcher has a great degree of control over the relevant variables). At the conclusion of the model program the researcher moves on to the development of a "prototype." The prototype is the implementation of the project in a real life setting on a major scale. At this stage Suchman feels that the experimental research designs of Campbell should be employed. This three-stage model of demonstration program evaluation appears to be far more realistic because it does in fact conform to the more natural evolution of service programs in organizations.

Using Suchman's categories of demonstration programs, it is possible to categorize the STARDATE project as a pilot program. At the point ADA began the STARDATE project it was not at all aware of the technological constraints, the major variables which should be researched, and certainly was in doubt regarding its own confidence to implement such a complex project. The proposed demonstration would consist of the development of a model and prototype program within the proposed project. The development of the model program would begin upon receipt of a contract from NIE and extend through the end of month #15 (see Section 5.0, "Management Plan"). Months #16 through #39 would be devoted to the development and implementation of the prototype network. Ideally, the completion of this prototype phase at the conclusion of the demonstration project would lead to ADA's beginning an operational delivery system. Assuming the proposed project could be initiated in July, 1978, the operational phase is expected to be initiated at the beginning of FY-82.

3.5 Proposed Alternative

ADA entered this planning contract tc study the delivery of continuing education via communications satellite with a relatively open mind. Although it has invested a substantial amount of its own resources in limited experiments with communications satellites over a two-year period, it has reserved judgment until recently regarding the pursuit of further efforts in this area. Since ADA has had the opportunity to undertake the six-month planning study financed by the National Institute of Education in which it was able to gather a substantial amount of data regarding the state of the art and membership's needs for CE services,

ADA is prepared to commit itself to the conduct of the proposed demonstration program. It is ADA's belief that this program will result in the development of a prototype delivery system which can be economically self-sustaining and provide Registered Dietitians throughout the U.S. with high quality CE services which will augment those educational opportunities which may be available at the local level.

ADA will complete the development of its pilot program of experimentation with communications satellites by August, 1978. Under the proposed NIE-supported project of investigation, ADA will move on to the development of a model and then a prototype delivery system. Between the beginning of the project in FY-78 and the end of FY-79, ADA will complete the development of the model through continued use of two experimental satellites: CTS and ATS-6. These satellites will be used to develop model CE workshops in a variety of settings, employing various institutional arrangements. The rationale for terminating the model program development using the experimental satellites at the end of FY-79 is:

- Expected useful life of the experimental satellites is considered relatively secure through that time period.
- Constraints placed upon experimentation through the use of these two satellites would constrain the eventual progression of the project to the prototype phase.

During FY-80 and -81 the prototype of the delivery system will be developed. For this period two satellites will be used: SYNCOM IV and WESTAR. The choice of these two satellites will allow ADA to continue its experimentation with local institutional working relationships initiated during the model phase and will provide certain cost savings over the use of other commercial communications satellite options. It should be noted that the WESTAR satellite will be used in conjunction with the Public Television Satellite System as opposed to completely independent use of the satellite.

The presentation format to be used for these CE programs will be competency-based workshops. These workshops will be developed in conjunction with the Center for Educational Development (University of Illinois at the Medical Center) which has extensive experience in this field. The program development will be accomplished in conjunction with a Program Advisory Committee comprising dietetic practitioners from a variety of locales and specialties. In order that the model and prototype program are congruent with ADA's stated interest in developing a demonstration project which is responsive to the needs of the various professional practitioner groups, a Project Review Board will be identified to act in an auditing capacity.

Because of the present cost advantages of narrow-band communications via satellite, both interactive audio and interactive audiovisual program formats will be developed. Also, six audiovisual programs will be developed to be appropriate for freeze-frame transmission techniques. These six programs will be transmitted using both narrow- and wide-band formats (i.e., using both freeze-frame and full-motion video transmission).

None of these alternative choices have been considered and decided upon without continual reference to the needs/wants of the professional community in general and the dietetic practitioners specifically. As has been earlier reported, ADA made substantial efforts during the period of the planning contract to understand the interests of various professional groups in CE delivered via communications satellite as opposed to other communication channels. Because ADA is a professional association, it does not undertake any project without careful review of the membership community's interest. As has also been presented earlier in this report, the needs of the dietetic practitioner community have been carefully reviewed. However, perhaps some additional documentation for the above selected alternatives is in order. Below are five major questions that ADA assumes would be asked, given the above stated course of action chosen.

Q. Why would ADA want to pursue further experimentation with communications satellite-delivered continuing education services?

A. There are several reasons for this. One of the major reasons is that the communications satellites would allow ADA to invest heavily in the development of a program which could then be supported by registration fees of a wide consumer base. It has been indicated to ADA that the professional community prefers well-prepared nationally produced educational material, as opposed to the locally produced materails they have currently experienced. A review of Table 3.10 indicates that over 56% of the membership do prefer nationally produced CE.

It is not ADA's interest to try and replace locally produced CE. Its primary objective is to augment the local professional community's activity by increasing the amount and types of choices available to the local practitioner. This intent is supported by the ADA membership, as indicated in Table 3.11. The reader will note that the STARDATE participants' positive response increased between the pre- and post-measures to the question, "I think communications satellites could increase the amount and types of continuing education experiences that are available to dietitians."

Along with increasing the amount of money invested in the program development for nationally delivered CE programs, it is also possible to attract better faculty for these programs since they are offered on a national level. Primary incentives for these faculty are prestige, greater income, and better use of his/her time (i.e., rather than "circuit-riding" around the nation to conduct CE training, the expert can effect the education of many practitioners at one time). A review of Table 3.12 indicates that those dietetic practitioners who had experienced a communications satellite-delivered workshop which conformed to this model not only agreed with this theme, but were willing to promote this type of program to their colleagues as a valuable learning experience.

TABLE 3.10

"Locally produced CE materials seem better for my needs than nationally produced materials."

	LOCAL MATERIALS ARE BETTER
Strongly agree	4.3%
Agree	21.5%
Disagree	51.8%
Strongly disagree	5.3%
Does not apply	17.1%
	N = 531

Source: CED "Survey on Continuing Education Needs," CE Question No. 80.

TABLE 3.11

"I think communications satellites could increase the amount and types of continuing education experiences that are available to dietitians."

	Pre-Workshop	Post-Workshop
Agree	94.5%	99.2%
Disagree	0.0%	0.0%
Neutral	5.5%	0.8%
	N = 128	N = 121

Source: ADA STARDATE '77 "Pre-" and "Post-Workshop Attitude Questionnaire," Question No. 32 by 25.

TABLE 3.12

"Now that I've participated in this workshop, I would recommend other similar STARDATE workshops to friends/colleagues as valuable learning experiences."

by

"I would pay a higher registration fee to attend a mediated workshop (such as this STARDATE workshop) conducted by a nationally recognized expert than I would for an 'in-person' workshop conducted by a less expert but qualified person."

Higher Fee for Nationally Recognized Expert	Would Recommend STARDATE		
	Agree	Disagree	Neutral
Agree	57.9%	0.0%	27.2%
Disagree	26.2%	100.0%	36.4%
Neutral	15.9%	0.0%	36.4%
	N = 107	N = 2	N = 11

Source: ADA STARDATE '77 "Post-Workshop Attitude Questionnaire," Question No. 27 by 11.

One of the main characteristics of communications satellites which initially attracted ADA to its current series of experiments is their ability to provide interactive communication. ADA provides the dietetic practitioner community with an audio cassette subscription service. Although the audio tapes and attendant software are well developed, the most common criticism heard from the subscribers is that there is no opportunity to discuss the didactic material with the presenter. Many of these subjects are relatively complex or concepts put forth are relatively new; this type of material requires interaction between student and faculty for adequate understanding of content. The lack of interaction also affects the interest and attention span of the student using this resource; occasionally a subscriber complains that he/she falls asleep in the middle of the tape, not because the content is not considered excellent, but because the communication is all one-way. Also, the audio cassette and other correspondence-type materials tend to be used in isolation; it is ADA's experience that the average dietetic practitioner prefers to take his/her learning experiences in group situations. The gathering together of professionals in small groups throughout the country to utilize communications satellite-delivered CE programs would fill this need. A review of Tables 3.13, 3.14, and 3.15 indicates that those respondents to the CE needs assessment conducted by CED agree with this position.

Q. Why would ADA choose the workshop format as the primary mode of CE delivery?

A. Although ADA does intend to investigate the use of home-based learning via cable TV with transmissions provided via a communications satellite (with interaction provided through a WATS line), the major mode of CE preferred by dietetic practitioners is the workshop. The reader will note from Table 3.16 that the respondents to the CE needs assessment ranked the seminar/workshop method of obtaining CE highest over nine other formats. Not only was the mean rank highest, but the mode rank score was also the highest for the seminar/workshop format. A review of Table 3.17 indicates that not only is the seminar/workshop format preferred, it is also the most common format used to obtain CE.

Q. Do the dietetic practitioners support ADA in its development of a continuing education delivery system using a communications satellite?

A. On occasion, the headquarters personnel of a professional association tend to be out of step with the general attitudes of their constituency. Therefore, this is a reasonable question. There are two types of confirmation of ADA's claim of constituency support for this project. First, during the last two fiscal years ADA has supported its investigation of communications satellites with its own limited resources. These resources are derived primarily from membership dues. The membership has a variety of representatives who provide advice in the development of the annual budget for the Association and are responsible for its approval. During both FY-77 and -78, these communications satellite experiments have enjoyed strong support on the part of the membership, else they simply would not have been funded.

TABLE 3.13

"A lot of learning I get from CE comes from professional discussions with colleagues in group situations."

	CE COMES FROM PEER GROUPS
Strongly agree	13.4%
Agree	50.2%
Disagree	24.3%
Strongly disagree	4.6%
Does not apply	7.5%
	N = 536

Source: CED "Survey on Continuing Education Needs," CE Question No. 40.

TABLE 3.14

"The ability to ask questions and discuss during and after a CE program adds a great deal to CE."

	DISCUSSION ADDS TO CE
Strongly agree	26.1%
Agree	62.3%
Disagree	7.7%
Strongly disagree	0.9%
Does not apply	3.0%
	N = 533

Source: CED "Survey on Continuing Education Needs," CE Question No. 46.

TABLE 3.15

"If I had my choice, I'd attend a CE experience that gave me an opportunity to interact with the presenters and with my peers, rather than a CE experience that involved just listening."

	PREFER INTERACTION TO LISTENING
Strongly agree	24.3%
Agree	49.8%
Disagree	20.4%
Strongly disagree	1.5%
Does not apply	4.0%
	N = 530

Source: CED "Survey on Continuing Education Needs," CE Question No. 47.

TABLE 3.16

"Please rank the methods you think you would prefer to use for Continuing Education. Place a #9 after the method you would MOST LIKE to use, a #8 after your next favorite method, and so on to #1 for your LEAST PREFERRED method. Please rank ALL methods, even if you've never tried them."

METHOD OF OBTAINING CE	RANK (MEAN)	RANK (MODE)	
District meetings	6.56	8.00	N = 498
State/national meetings	6.62	8.00	N = 497
Seminars/workshops/lectures (other than state/national/district)	7.54	9.00	N = 498
Classroom degree programs	4.55	5.00	N = 491
Classroom non-degree programs	4.75	5.00	N = 490
Correspondence courses	3.11	1.00	N = 49[illegible]
Journal clubs	3.45	1.00	N = 4[illegible]9
Audio tape programs (including study guides)	4.44	5.00	N = 487
Videotape/film/slide-tape programs	4.07	5.00	N = 485

Source: CED "Survey on Continuing Education Needs," Question No. 18.

TABLE 3.17

"Of the TOTAL number of hours ..." (earned 1973-1977) "... tell us how many you earned by each method listed below. If you did not use a method, put a '0' in that blank."

METHOD OF OBTAINING CE	CE HOURS EARNED 1973 - 1977 (MEAN)
District meetings	12.39
State/national meetings	26.02
Seminars/workshops/lectures (other than state/national/district)	26.20
Classroom degree programs	7.50
Classroom non-degree programs	5.25
Correspondence courses	0.71
Journal clubs	2.02
Audio tape programs (including study guides)	3.46
Videotape/film/slide-tape programs	0.72
Other	7.01
	N = 453

Source: CED "Survey on Continuing Education Needs," Question No. 17.

The second substantiation for this claim is the response of the dietitians who have completed a series of workshops designed and implemented by ADA using CTS during 1977. Table 3.18 indicates that the STARDATE participants generally felt ADA should sponsor regular programs like STARDATE. Table 3.19 indicates that not only will they support regular programs like STARDATE, they intend to participate in these programs if the subjects are related to their special field of interest. In addition to general support and willingness to participate, Table 3.20 indicates that they would even strongly promote these programs among their friends and colleagues as "valuable learning experiences."

Often people are willing to verbally support a project and will even publicly affirm this, but have difficulty when it comes to the issue of cost of participation. Table 3.21 indicates that those who participated in the STARDATE project felt the program was worth the direct costs paid. Not only did this group feel that the direct costs were worth it, many of them indicated they would pay a higher registration fee if necessary. The registration fee charged for each of the STARDATE programs was $25. Table 3.22 indicates that more than half of the respondents would pay more than $30 for the registration fee; over 41% would pay more than $40. This is an interesting response when the reader considers that these people were asked to simply volunteer this information; it is not unlikely to expect that if the actual price they were confronted with was somewhat higher, they would still be willing to pay.

Respondents to questionnaires often have a willingness to agree with the surveyor, which at times warps the value of responses to positively structured questions. Therefore, the STARDATE project staff included several negatively constructed questionnaire items. One of these items provided the respondents with the opportunity to state forthrightly that they felt the STARDATE program was a waste of ADA's time and money. The reader will note from Table 3.23 that only 2.5% of the respondents (N = 121) agreed with this statement.

Q. If the dietetic practitioner group is willing to support an occasional program of workshops such as STARDATE, would they be likely to bear the direct costs involved if these programs were offered regularly?

A. This is a difficult issue to address. Perhaps the only way to really do it justice is to actually offer an extended series of programs such as that proposed in this demonstration project. However, a similar question was asked of the STARDATE participants at the conclusion of the workshops. A review of Table 3.24 does indicate that a substantial percentage of the respondents could bear these costs (the mean cost per student was slightly over $50) as frequently as every three to six months. Almost one-third of the respondents indicated that they could support their participation in these programs as frequently as once a month.

TABLE 3.18

"I think ADA should sponsor regular, frequent continuing education programs like STARDATE."

Agree	84.2%
Disagree	0.8%
Neutral	15.0%
	N = 120

Source: ADA STARDATE '77 "Post-Workshop Attitude Questionnaire," Question No. 20.

TABLE 3.19

"If ADA offered programs like STARDATE in the future, I would attend them in order to receive continuing education in my field."

	Pre-Workshop	Post-Workshop
Agree	73.0%	83.5%
Disagree	5.6%	5.0%
Neutral	21.4%	11.5%
	N = 126	N = 121

Source: ADA STARDATE '77 "Pre-" and "Post-Workshop Attitude Questionnaire," Question No. 18 by 13.

TABLE 3.20

"Now that I've participated in this workshop, I would recommend other similar STARDATE workshops to friends/colleagues as valuable learning experiences."

Agree	89.1%
Disagree	1.7%
Neutral	9.2%
	N = 120

Source: ADA STARDATE '77 "Post-Workshop Attitude Questionnaire," Question No. 27.

TABLE 3.21

"Now that I've participated in this workshop, I would recommend other similar STARDATE workshops to friends/colleagues as valuable learning experiences."

by

"Do you think this workshop was worth the total direct cost to you?"

STARDATE WAS WORTH THE COST	WOULD RECOMMEND STARDATE		
	AGREE	DISAGREE	NEUTRAL
Yes	97.6%	0.0%	100.0%
No	2.4%	100.0%	0.0%
	N = 82	N = 1	N = 3

Source: ADA STARDATE '77 "Post-Workshop Attitude Questionnaire," Question No. 27 by "Cost of Workshop Participation."

TABLE 3.22

"Now that I've participated in this workshop, I would recommend other similar STARDATE workshops to friends/colleagues as valuable learning experiences."

by

"Now that you've completed the workshop, what is the maximum registration fee you would have personally been willing to pay had you known (when registering) as much about the program as you do now?"

Maximum Registration Fee	Would Recommend STARDATE		
	Agree	Disagree	Neutral
$20 or less	5.6%	100.0%	27.3%
$21 - $30	41.1%	0.0%	54.5%
$31 - $40	12.2%	0.0%	9.1%
$41 - $50	28.0%	0.0%	9.1%
$51 - $60	8.4%	0.0%	0.0%
More than $60	4.7%	0.0%	0.0%
	N = 107	N = 2	N = 11

Source: ADA STARDATE '77 "Post-Workshop Attitude Questionnaire," Question No. 27 by 5.

TABLE 3.23

"I think the ADA STARDATE experiment offering continuing education to dietitians via communications satellite is a waste of ADA's time and money."

Agree	2.5%
Disagree	89.3%
Neutral or N/A	8.2%
	N = 121

Source: ADA STARDATE '77 "Post-Workshop Attitude Questionnaire," Question No. 22.

TABLE 3.24

"In reviewing the total direct costs you paid to participate in this workshop, do you think this expense would prevent you from attending: one STARDATE workshop per year? one STARDATE workshop per 6 months? one STARDATE workshop per 3 months? one STARDATE workshop per month?

	1 Per Year	1 Per 6 Months	1 Per 3 Months	1 Per Month
Yes	14.1%	31.1%	58.8%	70.6%
No	85.9%	68.9%	41.2%	29.4%
	N = 85	N = 74	N = 68	N = 68

Source: ADA STARDATE '77 "Cost of Workshop Participation."

TABLE 3.25

"My employer will usually release me when I want to attend a CE program."

	EMPLOYER WILL RELEASE FOR CE
Strongly agree	17.4%
Agree	53.1%
Disagree	11.8%
Strongly disagree	3.7%
Does not apply	14.0%
	N = 535

Source: CED "Survey on Continuing Education Needs," CE Question No. 42.

TABLE 3.26

"My employer will usually pay for at least part of my CE expenses."

	EMPLOYER WILL PAY
Strongly agree	10.3%
Agree	48.4%
Disagree	17.5%
Strongly disagree	10.1%
Does not apply	13.7%
	N = 533

Source: CED "Survey on Continuing Education Needs," CE Question No. 44.

Another related issue has to do with the employer's attitude toward releasing the employee for CE programs. Although the employee may frequently be willing to bear the direct costs, it is reasonable to question the employer's attitude toward this issue. The employer frequently provides the registration fee for CE and also suffers the loss of the employee while absent from the job. Table 3.25 indicates that over 70% of the respondents felt their employers usually release them when they want to attend a CE program. Because a portion of ADA's promotion of these programs will be directed toward the employer community, this is considered a very important finding.

A positive indication of employer support is provided by Table 3.26 which indicates that over 58% of the dietitians' employers will usually pay for at least part of their CE expenses. It is noteworthy that the part they will usually pay is the direct registration fee vs. travel and lodging costs. Further evidence regarding this assertion is provided by Table 3.27. Almost half of the respondents' registration fees were paid by the employer, but less than 20% of the employers were paying for travel and lodging expenses. The value of the communications satellite is that it can bring the CE experience close enough to practitioners so that in most cases they do not need to leave the work area overnight.

Q. In the aggregate, does the dietetic practitioner community spend a sufficient amount of money per year to support an operational CE delivery system via communications satellite?

A. The answer to this question would depend on the quality of the programs developed, the types of faculty employed, and the sophistication of the programs' marketing. However, one indication of the potential of this market is the aggregate amount of money spent on CE at the present time.

A review of Table 3.28 indicates the average cost of continuing education by year for the last five years for a total of 441 respondents to the CE needs assessment conducted during the planning contract period. At the present time, there are 27,635 Registered Dietitians in the United States. In order to maintain their registration status, they must acquire 75 CE hours within every five-year period. Therefore, assuming the number of dietitians remains constant (unlikely; membership is rising rapidly) and they only spend the same amount of money for CE in 1978 as they did in 1977 (again unlikely due to inflation), the total dollars spent (aggregate market) for 1978 CE would be:

$$27,635 \times \$229 = \$6,328,415.$$

In summary, it is ADA's position that there is a large enough volume of expenditures for CE services at the present time to support a CE delivery system which would employ communications satellites as one mode of delivery.

TABLE 3.27

"Who is paying your registration fee for this workshop?"

and

"Who is paying your travel and lodging expenses (if any) for your participation in this workshop?"

	Registration		Travel and Lodging	
	F	N	F	N
Self	41.1%	56.9%	65.2%	73.5%
Employer	57.1%	41.7%	21.7%	13.2%
Other	1.8%	1.4%	13.1%	13.3%
	N = 56	N = 72	N = 46	N = 68

F = "Financial Management"
N = "Nutritional Assessment"

Source: ADA STARDATE '77 "Pre-Workshop Attitude Questionnaire."

TABLE 3.28

"Please tell us how many continuing education hours you earned in each of the years listed. Then, in the "COST" column, estimate to the nearest $100 how much you spent for these hours (including travel, babysitting, tuition, and any costs your institution paid)."

YEAR	CE HOURS EARNED (MEAN)	COST (MEAN)
1977	18.75 (N=480)	$228.69 (N=441)
1976	19.55 (N=489)	$161.86 (N=426)
1975	20.00 (N=494)	$147.97 (N=427)
1974	20.56 (N=485)	$140.19 (N=428)
1973	16.13 (N=473)	$137.32 (N=434)
Total in 5-year period	94.99	$816.03

Source: CED "Survey on Continuing Education Needs," Question No. 16.

4.0 OPERATIONAL PLAN

The purpose of this section is to provide the reader with an operational plan to demonstrate the value of communications satellites in the delivery of continuing education (CE) services to a national professional group. This presentation will include a discussion of the types of services to be provided, a description of the course materials, a discussion of the technical delivery systems to be employed, and a description of the evaluation design.

4.1 Types of Services

As was stated earlier in this report, The American Dietetic Association is not interested in undertaking this project solely to generate direct services for its membership. ADA is seriously interested in undertaking a well-organized evaluation of the potential value of communications satellites to deliver CE services to a national professional population. Therefore, when considering the types of services to be delivered under this proposed project, not only are the dietetic practitioners involved, but also ADA top management, other professional associations, and NIE management. Thus, the types of services discussed in this subsection will relate to all four interest groups.

4.1.1 Educational Programs

During the 39-month period of the project, 36 continuing education workshops will be developed by ADA with the support of the Center for Educational Development (CED) (University of Illinois at the Medical Center). These programs will be developed during the fiscal year 1979 (24 programs developed) and 1980 (12 programs developed). See Figure 4.1 for an illustration of Program Development and use. Although both audio and audiovisual programs will be developed, the emphasis will be upon content which requires an audiovisual presentation.

The specific subjects selected will be drawn from the needs assessment surveys conducted by ADA and other parties (see subsection 4.2). A Program Advisory Committee will be identified and will have a final authority regarding the choice of program subjects. The major portion of these programs will be conducted live; pre-taped segments will usually be employed for the purpose of stimulating discussion (i.e., as "trigger tapes"). Because of the unique characteristic of the communications satellites to provide interaction, a major emphasis in the design of these programs will be placed on designing to encourage interaction between the student and remote faculty. It is recognized that the live time available on the satellites will be limited and, therefore, it may be necessary to terminate interactive discussion regarding the subjects of interest earlier than is desirable. In the event that this should occur, additional response to student questions will be provided after broadcasts by using either a WATS line, teletype, or mail responses in a newsletter format.

Each workshop will have a study guide which will include an introduction, the various pre-test instruments necessary, an outline of the program, associated reading material and case histories, worksheets, and a post-test. As with all educational content developed under this project the study guides will be pre-tested in the local area of Chicago. All programs will have specifically

PROGRAM DEVELOPMENT AND USE FIGURE 4.1

	FY-78 7-9/78, Mo.1-3 (3 Months)	FY-79 10/78-9/79, Mo. 4-15 (12 Months)	FY-80 10/79-9/80, Mo. 16-27 (12 Months)	FY-81 10/80-6/81, Mo. 28-36 (9 Months)*
NUMBER OF PROGRAMS TO BE DEVELOPED	0	CED-24: 12 to be used FY-79 12 to be used FY-80 ADA/AESP: 1 to be used FY-79	CED-12: 6 to be used FY-80 6 to be used FY-81 ADA/AESP: 1 to be used FY-80	ADA/AESP: 1 to be used FY-81
NUMBER OF BROADCASTS & COMM. SATS. TO BE USED	0	CTS-24: 12 to West (VA) 12 to East (SECA & MUSC) ATS-6/ATS-3 - 24: 12 (+ 1) to NE (AESP) 12 (+ 1) to SE (AESP)	WESTAR-24: 6 rebroadcasts of 12 used FY-79; 12 developed FY-79 but not yet used; 6 (+ 1) developed FY-80. SYNCOM IV - 18: 12 developed FY-79 but not yet used; 6 developed FY-80	WESTAR-12: 6 rebroadcasts; 6 developed FY-80 but not yet used; (1 developed FY-81) SYNCOM IV: same as above.
NOTES		Above means: 12 programs developed FY-79 rebroadcast to 4 different footprints. Means: 4 workshops/month for 12 months - 1 workshop/month to each footprint. FY-79 includes use of 2 freeze-frame programs to be transmitted 2 times each to 2 sites.	Above means: WESTAR = 2 workshops/month for 12 mos.; SYNCOM IV = 2 workshops/mo. for 9 months (from 4/80). Similar sites to CTS & ATS-6 & ATS-3 to be used as closely as possible. No footprint constraint - use of spot beams. FY-80 includes use of 3 freeze-frame transmissions to 2 sites each.	Above means: 2 workshops/mo. for 6 months. FY-81 includes use of 1 freeze-frame transmission to 2 sites.
STUDY KITS TO BE DEVELOPED	0	6 (from FY-79 programs)	12 (from FY-79 programs)	18 (from FY-79 & FY-80 programs)

* Does not include 3 months of evaluation.

identified outcome criteria which can be measured by either paper and pencil tests or observed simulations.

Although this project is oriented toward the development of a delivery system for CE, many of the institutions whose support ADA will require have commitments to the provision of CE to the general public in a broad sense. In other words, their commitments to mediated CE to the public are under the concept of "life-long learning." Because one of the main subjects of interest to ADA is nutrition and this is also a subject of interest to many segments of the general public, ADA will develop three CE programs for the general public on the subject of nutrition. The specific programs will be oriented toward audiences which are primarily rural. These programs will be developed in cooperation with the Appalachian Education Satellite Project which is operated under the Appalachian Regional Commission (see Section 5.0, "Management Plan"). Although these programs will be developed in the Appalachian Region for their rural population,it is expected that the programs will be of value to other rural populations served by other networks to be used under this project (see subsection 4.3). One of these programs will be developed in each of the full fiscal years of this project (i.e., FY-79, -80, and -81).

There appears to be a definite need for public programs on the subject of nutrition. The Appalachian Regional Commission has provided ADA with a considerable amount of data regarding the educational needs of the adult population in the Appalachian Region; one of the most frequently noted needs is for nutrition education. It is expected that by adding this facet to the project the potential for a stronger institutional bond between ADA and the specific institutionally-operated network will be strengthened. The more reason ADA is able to provide for cooperating in its attempt to provide CE programs to its professional group in that area, the higher probability of a successful outcome of the relationship between the network and ADA.

In the development of the above 39 CE programs, ADA will utilize "core content" that is currently available from existing educational programs on the identified subjects of interest. This will necessitate a considerable amount of effort on the part of project management to locate appropriate program content from throughout the United States. This content will be used as a core around which to build a mediated delivery. Adjustments will be made where necessary to accommodate the broadcast vehicle employed and the interactive format available. These initial pieces of core content will be submitted to the Program Advisory Committee for review and assessment. Upon clearance by this group, they will be submitted to the instructional technology staff at CED for development. Parallel with this activity, a program content specialist will be recruited from the profession and assigned to work on the project by CED project management. The vesting of this responsibility with CED is expected to eliminate "political or personal" bias toward certain members of the profession by their colleagues more active in Association affairs. While this problem is not any more frequent in ADA than in any other professional association, it is still a situation to be avoided in order to maintain the integrity of the project.

- 4.1.2 Services of Interest to NIE Management

ADA expects that NIE has a long-term mission plan in the area of educational services delivered by communications satellite. In order to pursue this mission there are a variety of questions which NIE needs to have investigated in order to gain a better understanding of the use of communications satellites for the delivery of educational services. Two of these areas are quite clear from from the RFP under which ADA's planning contract was let:

- Can a user community afford the use of communications satellites for the delivery of educational services? ADA anticipates that within the near future (e.g., 10 years) this question will become a "non-issue." However, for that period of time, while the question remains an issue, it is significant and should be addressed. ADA's proposed demonstration project has clearly attended to NIE's interest in this area and documented the potential for the development of a successful prototype service delivery network. It is expected that this prototype will be of value to NIE as it considers the potential for other professional communities to replicate this process for the delivery of CE to their respective constituencies.
- What kind of institutional arrangements are necessary to provide the effective use of communications satellites for educational purposes? Because of the nature of the sophisticated technology involved in the use of communications satellites, these services tend to be expensive. These expenditures are not only for the usual day-to-day costs of any educational program, but also involve significant capital outlay for the purchase or use of the necessary hardware. Because this hardware and the satellites themselves offer more capacity than any one user really requires, the sharing of resources among various institutions is not only necessary, but easily accommodated. If the service model under development by Satellite Business Systems is a reasonable indicator of the next generation of communications satellite services, it is very obvious to ADA that it will be necessary for public service organizations to develop various forms of sharing arrangements in order to access this valuable resource.

The reviewer will note that in the proposed demonstration project of ADA there is no mention of the purchase of earth stations, leasing of entire transponders, or any other major equipment expenditures. This is a deliberate move on the part of ADA. This choice was made on the assumption that NIE wishes its contractors to develop various cooperative institutional arrangements. Because there is already a significant amount of hardware available for access to a variety of communications satellites, ADA sees no reason for the purchase of additional equipment. However, ADA sees great value in the growth of skills in developing institutional arrangements with those organizations and enterprises which already own and have in place the requisite technical facilities for use of communications satellites. In fact, this choice can be extended to the sharing of technical knowledge as well. ADA has no intention of having its personnel become semi-communication engineers. Organizations already exist which are dedicated to the purpose of providing technical support services and consultation to professional organizations such as ADA. Therefore, ADA sees no value in developing this capability in-house. Again, it does see great value in becoming skilled at cultivating the

necessary relationships to access these services.

In summary, in a field that is changing as fast as communications, there is no long-term gain to an organization like ADA in becoming an owner of technical hardware or expertise when these resources are already available to share. It is ADA's expectation that this attitude is shared by top management at NIE. Because of this, one of the results of this model and prototype program's development ADA expects to share with NIE is how a professional association can develop the necessary institutional relationships required to access the necessary resources for use of sophisticated technology.

- 4.1.3 Services of Interest to ADA Management

The major services to be provided by this project that are of interest to ADA management are as follows:

- The pursuit of the research questions identified by the ADA STARDATE project conducted in 1977. These research questions can be found in Appendix VII.
- The provision of direct educational services to the dietetic practitioner community.
- The development of a self-supporting delivery system of continuing educational services.

ADA is presently reconsidering its current involvement in the development and implementation of CE programs for the professional community. Historically, ADA has maintained a relatively low profile in this area. The assumption has been that the district and state dietetic associations, related allied health organizations, and local institutions of higher education would provide for the CE needs of the Registered Dietitian (see Tables 4.1 - 4.3 for a brief survey of the services provided by these groups). However, it appears that the practitioner community is looking to ADA to stimulate new developments in the delivery of CE services in order to accommodate a more active professional community.

If ADA is to pursue this responsibility to augment the currently available CE services available to the dietetic practitioner community, then it's going to need to learn more regarding the marketing of CE programs. Given that these CE services need to meet the professional demands of the dietetic practitioners community while being economically self-supporting, the practitioner community's needs and wants, the available delivery systems and pricing strategies need to be understood. Because of this strong interest on the part of ADA management in the development of an effective marketing plan for CE services, NIE can feel confident that a great deal of attention will be paid to the proposed project in this area.

The Principal Investigator of this project had an opportunity to participate in a symposium on CTS sponsored by the Royal Society of Canada in December, 1977. At that conference, Dean Roy Schwartz of the University of Washington in Seattle (Principal Investigator for the WAMI experiment on CTS) made an interesting observation. He considered it fundamental

TABLES 4.1 - 4.3

CONTINUING EDUCATION
RECEIVED IN FORMAL WORKSHOP BY TEN LARGEST STATES
BETWEEN 6/76 AND 5/77 *

STATE	NUMBER OF WORKSHOPS SURVEYED	AVE. HOURS PER WORKSHOP	AVE. REG. FEE PER WORKSHOP	AVE. REG. FEE PER HOUR
California	25	7.6	$28.18	$3.71
New York	18	7.1	21.74	3.08
Illinois	15	6.3	27.02	4.27
Ohio	16	5.0	12.19	2.44
Texas	11	9.2	40.05	4.36
Pennsylvania	7	10.0	29.71	2.97
Michigan	6	7.3	17.92	2.44
Massachusetts	6	5.2	7.83	1.52
Florida	6	8.5	13.00	1.53
Wisconsin	12	8.3	24.75	3.00
	N = 122			

BY TYPE OF SPONSORING ORGANIZATION

SPONSORING ORGANIZATION	NUMBER OF WORKSHOPS SURVEYED	AVE. HOURS PER WORKSHOP	AVE. REG. FEE PER WORKSHOP	AVE. REG. FEE PER HOUR
State Dietetic Association	2	7.5	$12.00	$1.60
District Dietetic Association	22	5.9	16.61	2.83
Allied Organizations	97	7.6	25.59	3.35
	N = 121			

BY POPULATION OF WORKSHOP LOCATION

POPULATION **	NUMBER OF WORKSHOPS SURVEYED	AVE. HOURS PER WORKSHOP	AVE. REG. FEE PER WORKSHOP	AVE. REG. FEE PER HOUR
1,000,000 and over	20	6.9	$24.20	$3.51
500,000 - 999,999	28	8.4	31.46	3.73
50,000 - 499,999	42	7.1	20.60	2.89
10,000 - 49,999	24	7.0	21.13	3.00
Rural (9,999 or less)	8	5.8	17.13	2.98
	N = 122			

* Source of information: continuing education programs with prior approval by ADA Commission on Dietetic Registration.

** City populations, not including metropolitan areas, from 1970 Census.

that the CE providers address the need to develop an "attitude of payment" among the professional groups. Because CE has been ascribed a low value by many professional groups, they are often not willing to pay a sufficient amount to support high quality professional programs. The result is their low opinion of CE programs is continually reinforced by the absence of quality programs.

As ADA developes its marketing strategy for the delivery of CE services it intends to borrow heavily from the field of marketing the concept of "utility." People in the field of marketing see the utility of a service or product as having four aspects:

1. Form utility. Basically this implies that a consumer will pay more for a resource in one form than another. In the field of educational services this would be the form in which we've presented a body of knowledge (e.g., generalized or specific fashion, discreet modules vs. extended wide-ranging presentations, expert instructor vs. local talent, visual vs. written, theoretical vs. applied, etc.).

2. Time utility. This has to do with the difference between what a service can be sold for at one point in time vs. another. For instance, information regarding the problems with saccharin may have had different levels of value to our members at different points in time, depending upon the public interest in the subject. This difference in value could be reflected in such things as the price members are willing to pay to attend a workshop on the subject or the rate of attendance at such a continuing education workshop. The delivery system for CE services that we may create could have a great deal to do with time utility (e.g., the use of a simple videocassette mailed to our members vs. a televised broadcast by satellite, a written booklet on a subject with a study guide vs. an in-person workshop held at the height of interest in a subject).

3. Place utility. There is a great deal of difference in our members' assignment of value to a CE experience based on where it is offered. An audiocassette program with a study guide is worth more in their residence than it is at ADA Headquarters in Chicago; a workshop on hyperlipiproteinemia is worth more to them in their home town than in three distant cities throughout the United States; a videocassette with a written study guide and assignments requiring some literature research is worth more to them when viewed in a setting that can also provide the necessary library resources to complete the assignment than when viewed in a location missing such a resource.

4. Possession utility. The word "possession" is somewhat misleading. What is implied here is that a service is worth more when the consumer is fully and correctly informed regarding the relevant value of that service to them. This utility may be developed in the following ways:

    - Relating the value of a program on a given subject to the individual dietitian's area of practice. Imparting this kind of utility to a CE program that is canned (e.g., audiocassette, videocassette, etc.) is more difficult than if the program is interactive (i.e., the instructor and learner have an opportunity to discuss the didactic presentation in such a way that the learner understands its application to his/her field of interest).

- The learner can be made aware of the value of a given body of knowledge before attending a CE session. In some areas of the country a dietitian may not be aware that throughout most of the nation a given subject is becoming of high public interest; without realizing this, that dietitian may not consider a program on a certain subject very valuable. Another example: because dietitians may have been trained regarding a certain subject some years age when an undergraduate student, they may feel they still have the same knowledge/skill they once had or thought they had. They may need some assessment tool to indicate to them that, in fact, their degree of knowledge or ability regarding a specific subject is somewhat lacking. This form of assessment could be only at the entry level of registration to the field or could be more specific on a subject-by-subject basis in which tests of competence could be at a threshold beyond the entry level.

As ADA considers its role in the development and implementation of a national delivery system of CE, we will be engaged in trying to develop the most valuable service to our members possible.

An example of how the concept of utility would be applied to the proposed demonstration project follows. The above discussion of place utility noted that there was a difference in the individual's assignment of value to CE experience based on where it is offered. As the model program and the following prototype are developed, this issue can be operationally defined and relevant data collected and analyzed. For example, on the CE needs assessment reaction to the statement, "I prefer a hospital setting rather than an industrial setting for CE" was solicited. The response is contained in Table 4.4. The reader will note that the response pattern is rather diffuse. However, by segmenting the market into administrators, clinicians, and all others, the response pattern becomes significantly more defined as indicated in Table 4.5. The reader will note that once the market has been segmented, it is apparent that the clinicians strongly prefer their CE services in a hospital setting as opposed to an industrial setting. It will also be noted that the adminsitrative group is almost equally split regarding this issue. This is understandable given the fact that all dietitians at some point were exposed to a clinical setting as part of their training; most often this clinical setting would be a hospital. Therefore, most dietitians probably feel comfortable with this setting, whereas the clinical dietitians who may not have had exposure to industrial work settings would find this uncomfortable.

Another example of the potential for employing market segmentation to define place utility is found in Tables 4.4, 4.6, 4.7, 4.8, and 4.9. When the respondents to the CE needs assessment were queried regarding their preference for a community college setting rather than a university setting for their CE services, the response was again rather diffuse. However, a review of Tables 4.6. thru 4.9 indicates that specific market segments can be identified regarding their preference for one or the other setting. It could be said, based on this data, that those with graduate degrees, under 30 years of age, residing in the east or the

TABLE 4.4

"I'd prefer a community college setting rather than at a university for CE."

"I prefer a hospital setting rather than an industrial setting for CE."

	COMMUNITY COLLEGE	HOSPITAL
Strongly agree	2.8%	7.0%
Agree	26.7%	39.5%
Disagree	36.0%	27.8%
Strongly disagree	5.5%	3.8%
Does not apply	29.0%	21.9%
	N = 528	N = 525

Source: CED "Survey on Continuing Education Needs," CE Question Nos. 76 and 77.

TABLE 4.5

"I prefer a hospital setting rather than an industrial setting for CE."

by

"Select the primary focus of the majority of your professional responsibilities (or of your last job, if not currently employed)."

PREFER HOSPITAL SETTING FOR CE	PRIMARY RESPONSIBILITY		
	ADMIN./ MANAGEMENT	CLINICAL	ALL OTHERS
Agree	48.5%	70.8%	53.1%
Disagree	51.5%	29.2%	46.9%
	N = 169	N = 192	N = 49

Source: CED "Survey on Continuing Education Needs," crosstab of CE Question No. 77 by Question No. 13.

TABLES 4.6 - 4.9

"I'd prefer a community college setting rather than at a university for CE."

by

"What is your highest academic degree?"

PREFER COMMUNITY COLLEGE SETTING FOR CE	HIGHEST DEGREE	
	BACHELOR'S	MASTER'S OR DOCTORATE
Agree	46.8%	26.8%
Disagree	53.2%	73.2%
	N = 278	N = 97

"Age:"

PREFER COMMUNITY COLLEGE SETTING	AGE		
	20 - 29	30 - 49	50 OR MORE
Agree	34.0%	44.0%	44.1%
Disagree	66.0%	56.0%	55.9%
	N = 103	N = 150	N = 118

"What is the FIRST number in your Zip Code?"

PREFER COMM. COLLEGE SETTING	ZIP CODE AREA			
	EAST	SOUTH	MIDWEST	WEST
Agree	37.6%	50.0%	38.5%	41.6%
Disagree	62.4%	50.0%	61.5%	58.4%
	N = 85	N = 80	N = 130	N = 77

"Check the appropriate area in which you are currently employed as registered dietitian (or were last employed, if you are not now employed)."

PREFER COMMUNITY COLLEGE SETTING FOR CE	LOCALE	
	RURAL AREAS	CITY/SUBURB
Agree	57.1%	38.5%
Disagree	42.9%	61.5%
	N = 56	N = 314

Source: CED "Survey on Continuing Education Needs," crosstabs of CE Question No. 76 by Question Nos. 2, 8, 11 and 12.

midwest, and residing in the city or suburbs would not prefer a community college setting vs. a university for their CE training.

4.2 Description of Subject Areas for Continuing Education

The subjects for CE in which dietetic practitioners are interested tend to reflect the need areas discussed above in Section 2.0. Basically, they can be categorized into four types:

- Updating past knowledge. In their undergraduate and graduate training, dietitians are presented with a rather broad spectrum of subject areas which will prepare them to fit into a variety of practice settings. As dietitians gain experience, they tend to concentrate on certain areas. As a result of this, various subject areas which are still relevant to their practice are not reinforced. Consequently, they look to CE to provide them with "a refresher" in various subject areas.
- Subjects which are specialized. As noted above, over time many dietitians tend to become more specialized in their practice. This then requires a greater depth of knowledge and understanding regarding specific areas of their field which were not necessarily provided during their undergraduate or graduate training. It is particularly difficult for practitioners to acquire this type of CE because of the small audience interested in any one location. It will be of great interest to ADA in the proposed demonstration project to test the value of communications satellites in delivering CE programs which require the aggregation of these isolated practitioners with special interests.
- Subjects which allow the practitioner to assume new responsibility. Most of the dietetic practitioners are prepared in their undergraduate and graduate training to become clinicians. It is fundamental to the profession of dietetics that the practitioner understand and be capable of conducting clinical practice. However, as is true in many professions, the individual practitioner assumes or is assigned new responsibilities for which he/she was not specifically trained. This is particularly true in the area of administration where, even though one may maintain a clinical focus, the responsibility for personnel and other resources is assigned or assumed as the practitioner gains experience. All of a sudden subjects like labor laws, cost accounting, legal liability, etc. become of great interest to the practitioner, but are very difficult to acquire through the current CE delivery system.
- "State of the art" information. Like any other profession, new developments break quickly in the field of dietetics. The ability for the individual practitioner to be competitive often depends upon his/her ability to maintain an awareness of new developments in the field. The problem of information transfer has been long recognized. Our culture is able to generate new information faster than it is able to communicate it to the appropriate parties. Consequently, many professional practitioners are not operating as efficiently as they might had they been aware of new developments in their field. This tends to be true not only of specific technical skills, but also of deliberative issues (e.g., awareness of current legislative activity related to the specific field).

Because of the large and diverse group of practitioners which will be included in the ADA proposed demonstration, it will not be appropriate to regionalize the subject areas of the programs to be developed for broadcast via communications satellite. At this early stage in development, ADA will make a conscious effort to omit program subjects which have limited appeal due to provincial interest. This is a somewhat different decision than the above discussed interest in aggregating special interests which cut across the various geographic areas.

The identification of specific programs for production will be the responsibility of a Program Advisory Committee. This group will meet quarterly and continue its deliberations between meetings through the mail. The Program Advisory Committee will consist of eight practitioners nominated by ADA and subject to agreement by staff from the Center for Educational Development, who will be responsible for the actual program production.

During the planning contract period a great deal of effort was directed toward identifying potential program content sources and initiating other relevant institutions' interest in the ADA proposed demonstration project. It is expected that this effort will allow ADA to enter into program production almost immediately after the award of a demonstration contract. Examples of this preparation are:

- ADA has discussed the potential of cooperating with the National Institutes of Health in the development of CE programs built around current research underway at NIH. These discussions have been taking place with Mr. Storm Whaley, Associate Director for Communications of NIH, and Dr. Seymour Perry, Associate Director for Medical Applications of Research at NIH. At this time no definite arrangements to pursue this matter have been finalized. However, the proposed demonstration project contained within this report has been shared with NIH management and it can be said that they are very interested in cooperating in this venture. The management at NIH is very interested in the dissemination of research findings to the practitioner community. It has been ADA's experience that isolated presentations of research findings to groups of practitioners do not always achieve the goal of stimulating change in the practitioner community. ADA proposes to couple the NIH researchers with the instructional technology staff at CED in order to develop and implement CE programs which are not only informative but educational in their design and outcomes.
- The Medical University of South Carolina presently has a large selection of videotape presentations of appropriate material for CE of dietetic practitioners. Most of these videotapes do not have the related software to provide a CE experience which would develop and test specific competencies. The staff at MUSC are interested in cooperating with ADA in its proposed demonstration project (see Section 5.0) and they have indicated a willingness to share these materials with ADA and its subcontractor, CED, so that more fully developed CE programs may be devised using some of their material as core content.
- The staff at CED who will be responsible for both the program development and the evaluation component of the proposed demonstration project have a great deal of experience in producing educational

experiences for professional practitioners which are competency-based and provide program faculty with identifiable outcome indicators. Appendix VIII contains a copy of an outline of a simulation on interpersonal skills which was developed by CED's staff for physician training. A review of this material indicates that with very little effort this format could be adapted to use for a CE experience for dietetic practitioners. This would be conducted via communications satellite using a local facilitator as an evaluator of performance or, with small groups, the faculty person could provide the evaluation of the practitioner's performance in the simulation via an auditory talkback system.

At the conclusion of the STARDATE '77 workshops, the students were asked to identify program subject areas which were both of significant interest to them and which, in their opinion after completing a satellite-mediated workshop, had potential for delivery by communication satellite. Figure 4.2 provides in rank order those subject areas mentioned by the STARDATE participants along with rankings of those CE subject areas of major interest to dietetic practitioners responding to a recent survey of allied health professionals conducted throughout Ohio by Ohio State University (Upp, 1978). The reader will note that there is a remarkable similarity in the two lists. Initially, these subject areas represent the field for program development which would be undertaken by ADA and CED in the first year. In other words, these are the initial subject areas in which project staff attempt to find already existing core content material which can be adapted into a program format to provide competency-based CE via communications satellite.

In Subsection 4.1.3 ADA presented its intent to develop a fairly sophisticated marketing plan for CE services. The same concept of market segmentation discussed in that subsection is applicable to the selection of program content as well. Table 4.10 presents the response received to four questions regarding CE content areas preferred by the respondents to the CE needs assessment. A review of Table 4.11 indicates that if ADA were to pursue a series of CE programs to update dietitians' basic biochemical knowledge, this program would have a greater probability of success if aimed at the clinical dietitians as opposed to the other categories of practitioners. This type of analysis will be conducted throughout the duration of the proposed demonstration project. The develop of an efficient system of identification of segments of the practitioner community which are most interested in certain subjects will lead to a higher probability of success in the ultimate delivery of CE programs. This will allow ADA to draw audiences which are significantly interested in the specific subject to be offered, which will allow a greater opportunity for demonstrating the potential of communications satellite-delivered educational experiences.

One additional component of ADA's plan regarding the implementation of the proposed project is expected to be of interest to the reader. At the present time, the dietitian taking a CE program is not required

FIGURE 4.2

SUBJECT AREAS OF MAJOR INTEREST
TO DIETETIC PRACTITIONERS

RANK	ADA - STARDATE	UPP - OHIO
1	Labor controls/laws	New advances
2	New clinical information	Patient education/motivation
3	Employee in-service techniques	Therapeutic dietetics
4	Clinical specialties	Personnel management
5	Financial management/ cost control	Planning and analysis
6	Specific nutritional problems (aging, ethnic)	Communications with other health professionals
7	MBO/administrative techniques	Nutritional assessment
8	Assessment techniques	Development and use of audiovisual aids
9	Behavior modification (obesity)	Labor relations
10	Interviewing techniques	Renal dietetics

Sources: ADA STARDATE '77 "Post-Workshop Attitude Questionnaire" and Sylvia Upp's "Section IV - An Assessment of the Continuing Education Needs of Allied Health Professionals in the State of Ohio."

TABLE 4.10

"There should be CE available for me so that I can deal with public education."

"I'd like more CE on basic biochemical issues."

"I'd like more CE on evaluation skills."

"I'd like more CE on curriculum development."

	PUBLIC EDUCATION	BIOCHEMICAL ISSUES	EVALUATION SKILLS	CURRICULUM DEVELOPMENT
Strongly agree	12.7%	13.7%	8.3%	6.8%
Agree	55.8%	49.0%	60.9%	39.3%
Disagree	13.5%	23.2%	19.3%	31.1%
Strongly disagree	2.3%	6.4%	2.6%	4.0%
Does not apply	15.7%	7.7%	8.3%	18.2%
	N = 527	N = 531	N = 530	N = 527

Source: CED "Survey on Continuing Education Needs," CE Question Nos. 70, 73, 74 and 75.

TABLE 4.11

"I'd like more CE on basic biochemical issues."

by

"Select the primary focus of the majority of your professional responsibilities (or of your last job, if not currently employed."

MORE BIOCHEMICAL CE	PRIMARY RESPONSIBILITY		
	ADMIN./ MANAGEMENT	CLINICAL	ALL OTHERS
Agree	55.6%	76.3%	76.3%
Disagree	44.4%	23.7%	23.7%
	N = 199	N = 232	N = 59

Source: CED "Survey on Continuing Education Needs," crosstab of CE Question No. 73 by Question No. 13.

to provide any accountability for what is learned from the experience. The only accountability currently required is that a form be filed with the ADA Commission on Dietetic Registration so that the individual dietitian's "account" can be credited with the appropriate amount of CE hours. This situation is recognized as not being optimal. The Commission on Dietetic Registration has expressed an interest in experimenting with various forms of accountability for CE programs. Under the proposed project, the participant will be offered two options:

- The practitioner could attend the CE program, fill out the necessary attendance form, and mail it to Commission staff for "X" number of hours of CE credit.
- The practitioner could not only attend the CE program, but also undergo a testing procedure designed to measure outcomes from the specific learning experience. This practitioner would not only receive CE credit for the "X" hours spent in attending the didactic portion of the CE program, but would obtain an additional amount of credit for completing the outcome evaluation. This could be a difference of as much as 1 or 2 CE hours per workshop because some simulations would require that much time to complete. Because the outcome measurement procedure is in itself a learning experience, it is reasonable that CE hours be assigned for this participation.

4.3 Technical System Requirements

This subsection will provide the reader with information regarding the technical system to be employed by ADA in the conduct of its proposed demonstration project. Included in the discussion will be the choice of communication satellites, the rationale for that choice, the areas of the United States to be affected, the number of earth stations to be used in those areas, and the total number of actively practicing Registered Dietitians who could be affected by this project by virtue of their geographic location. Appendix IX will provide the reader with: a map of the distribution of active dietitions across the U.S., earth station site maps for each network to be used, and a breakout by site of the total dietitian population which can access each network.

In Section 3.0 ADA presented information regarding the alternatives available in the experimental design of this project. It was noted that the overall conceptual design of Edward Suchman's three-stage demonstration project model (i.e., pilot-model-prototype) was chosen as most desirable. Also discussed in that section was the fact that the 1977 and '78 STARDATE experiments financed by ADA constitute the pilot phase in that process. Thus, with the initiation of activity under a contract award by NIE to carry out the proposed demonstration, ADA will wish to undertake the model and prototype development phases.

The reader will find an overview of the ADA technical system requirements on Figure 4.3, "Demonstration Project - Stages by Characteristics." There will be a slight amount of overlap between the Pilot and Model project stages (assuming contract funding in July, 1978). The Model stage will continue to use CTS and add ATS-6. The rationale for the addition of ATS-6 is to access the Appalachian Education Satellite Project network of sites. The Model stage

DEMONSTRATION PROJECT - STAGES BY CHARACTERISTICS FIGURE 4.3

DEMONSTRATION PROJECT STAGE	PROJECT SPECIFICATIONS						
	CHARACTERISTICS	TIME FRAME	COM. SAT. UTILIZED	NETWORKS UTILIZED	FACILITATOR SOURCE	SIZE OF R.D. POPULATION IN AREA	# OF EARTH STATIONS IN NETWORK AREA
PILOT	-trial & error -great degree of variation	8/77-8/78 (FY-77 & 78)	CTS	-Public Health Service -Veterans Administration	-ADA (Chicago) -SDA's in 11 western states	1,982 9,645	3 29
MODEL	-major variables identified -experiment in situation maximizing examination of program effect	7/78-9/79 (FY-78 & 79)	CTS ATS-6/ ATS-3	-Veterans Administration -SECA -MUSC -AESP	-SDA's in 11 western states -local DDA's -MUSC -AESP	9,645 2,388 164 2,822	29 10 1 44
PROTOTYPE	-implementation in real life setting -limited scale	10/79-9/81 (FY-80 & 81)	WESTAR (10/79-3/81) SYNCOM IV (4/80-3/81)	-PTSS in west. 11 states -SECA -AESP -MUSC -HHMI	-SDA's in 11 western states -local DDA's -AESP -MUSC -SDA's in appropriate states	9,645 2,388 2,822 164 9,254	34 53 31 1 13

Abbreviations:

CTS = Communications Technology Satellite
ATS = Applications Technology Satellite
AESP = Appalachian Education Satellite Project
SECA = Southern Educational Communications Assn.
MUSC = Medical University of South Carolina
HHMI = Howard Hughes Medical Institutes
SDA = State Dietetic Association
DDA = District Dietetic Association

will continue the use of experimental satellites because at this early stage in the development of the demonstration project, it is more cost-effective to use the available experimental communications satellites in order to familiarize the project staff better with the local networks and populations of interest. The reason for choice in network variation is discussed under the next subsection (4.4, "Evaluation"). The choice of networks has been made after consideration of the types of dietetic practitioner populations available through the network, the variation in the local viewing environment, and the differences in cooperating institutions. ADA feels confident in developing a model around the use of the two experimental satellities (CTS and ATS-6) through the end of FY-79, since all evidence to date indicates that both communications satellites will be functional for the duration of that period. The numbers of Registered Dietitians in the area included by the identified network have some overlap. For instance, the total for SECA sites includes the R.D. population from the state of South Carolina (164), which is also included under the MUSC network. The same is true of the AESP network because it contains the state of South Carolina and many other SECA sites. The number of earth stations in network area also includes a certain amount of overlap in the case of SECA and AESP. All networks identified have indicated support to ADA (see Section 5.0).

In the prototype development stage ADA will initiate the use of semi-operational and operational communications satellite systems. The WESTAR satellite has been chosen because of the link to the Public Television Satellite System (PTSS). This is attractive to ADA given the positive attitude the public broadcasting stations tend to have toward the use of their facilities as "telecommunications centers"(Robertson Associates, 1977). The cost savings accrued by using a PTSS earth station as opposed to one owned and operated by the Western Union Corporation, given that there are no downlink charges for the PTSS sites, are also attractive. In a multi-point communication format the downlink charges at Western Union sites could prove to be prohibitively expensive.

The choice of initiating experimentation in FY-80 on SYNCOM IV (assuming it is in fact operational) is related to the location of the earth stations currently planned. There will be a network of 13 earth stations, 12 of which will be located in Howard Hughes Medical Institutes. The reader will note that one of the viewing environments used at the pilot and model project stages was a hospital setting (the Veterans Administration and the Medical University of South Carolina sites). Because many dietitians are employed in hospital settings, it is of interest to ADA to continue a portion of the demonstration project in a hospital setting throughout all three stages. Although the MUSC microwave-connected sites in South Carolina can be accessed by WESTAR through the Columbia, South Carolina PTSS earth station, the characteristics of those audiences (extremely small sizes) will require that there be additional use of this type of viewing setting in areas where there will be large audiences as well.

During the pilot phase of this project (STARDATE), the CTS uplink at the Lister Hill National Center for Biomedical Communications (NLM/PHS/DHEW) has been used exclusively. There is some doubt regarding the intent of the National Library of Medicine's top management to have the Lister Hill Center continue with CTS experimentation after December, 1978. It is ADA's opinion that the Public Health Service network will continue to operate, as will the Lister Hill Center staff provide support to users of that network for CTS experimentation. However, at this time there have been tentative indications that NLM may cease experimentation of CTS after December, 1978. If this does not come to pass (i.e., Lister

Hill Center continues to be operational for CTS experimentation) ADA intends to continue its use as an uplink point for its CTS transmissions under the model stage of the demonstration project (FY-79). In the event that NLM does decide to have Lister Hill Center discontinue CTS experimenter support, ADA will use the NASA-Lewis uplink facility in Cleveland, Ohio.

Discussion of this potential situation has already been initiated with Pat Donoughe, CTS Operations Expermentation Manager. The advantage of cooperating with the Lister Hill Center is that ADA does not have to become an "approved experimenter" for CTS. Acquiring the status of approved experimenter involves approximately a six-month lead time, a fair amount of paperwork, ongoing communication with NASA personnel, and participation in CTS users' meetings. ADA does not imply that this activity is valueless, but as a cooperator with an organization which is already an approved experimenter for CTS, ADA can then devote its attention to more immediate issues such as program production, site coordination, etc. Therefore, in the event that Lister Hill Center can no longer act as the "umbrella" for ADA's CTS transmissions, ADA will continue under the Public Service Satellite Consortium's CTS Experiment #21.

During the prototype stage (FY-80 and -81) the choice of uplink will have great cost implications. Because the field is changing so fast and this uplink will not be required until late in calendar year 1979, ADA is postponing the specific identification of the uplink facility to be used for its WESTAR broadcasts. It is likely that this facility would be in the Chicago metropolitan area from a yet undetermined point due to proximity to the ADA Headquarters and the Center for Educational Development. As the use of the PTSS network increases over time, it is expected that some organization or consortium of organizations in Chicago will lease a dedicated microwave link to the WESTAR earth station located in Lake Geneva, Illinois. In the event this should occur, it is ADA's expectation that this would be the uplink facility of choice. ADA proposes to include, among the technical support services that will be subcontracted to the Public Service Satellite Consortium, the study of the potential uplink points as one of their responsibilities during FY-79.

During the model and prototype phases of the demonstration project, ADA will be conducting experiments with freeze-frame television. These experiments will be conducted on CTS and ATS-6 during the model stage and on SYNCOM IV during the prototype stage. The uplink point for this will remain the same as the full-motion video or audio broadcasts, as the subject of action will be the same for both broadcasts. The freeze-frame transmissions will merely utilize an extra camera in the studio for transmission via one of the satellites' audio channels to two different remote sites for each broadcast. The equipment and engineering support for the freeze-frame transmissions will be subcontracted in toto to Nippon Electric Corporation (NEC) of America. NEC personnel have extensive experience in this area. They have used CTS to demonstrate their equipment in conjunction with SBS' Project Prelude during 1977 and 1978. The NEC personnel welcome the opportunity to advise CED instructional technolgy staff regarding the specific relevant variables of interest for freeze-frame experimentation. There will be a total of six programs which will be transmitted to a few selected sites during FY-79, 80, and 81. Each of these six programs will be received in a freeze-frame format at two sites each. This is expected to generate a sufficient amount of data regarding the potential value of freeze-frame transmissions vs. full-motion video for analysis by

project staff to determine recommendations to ADA management regarding to use of the freeze-frame format in the future.

4.4 Demonstration Project Evaluation

The purpose of this subsection is to present the reader with a proposed evaluation strategy for the model and prototype stages of the demonstration project.

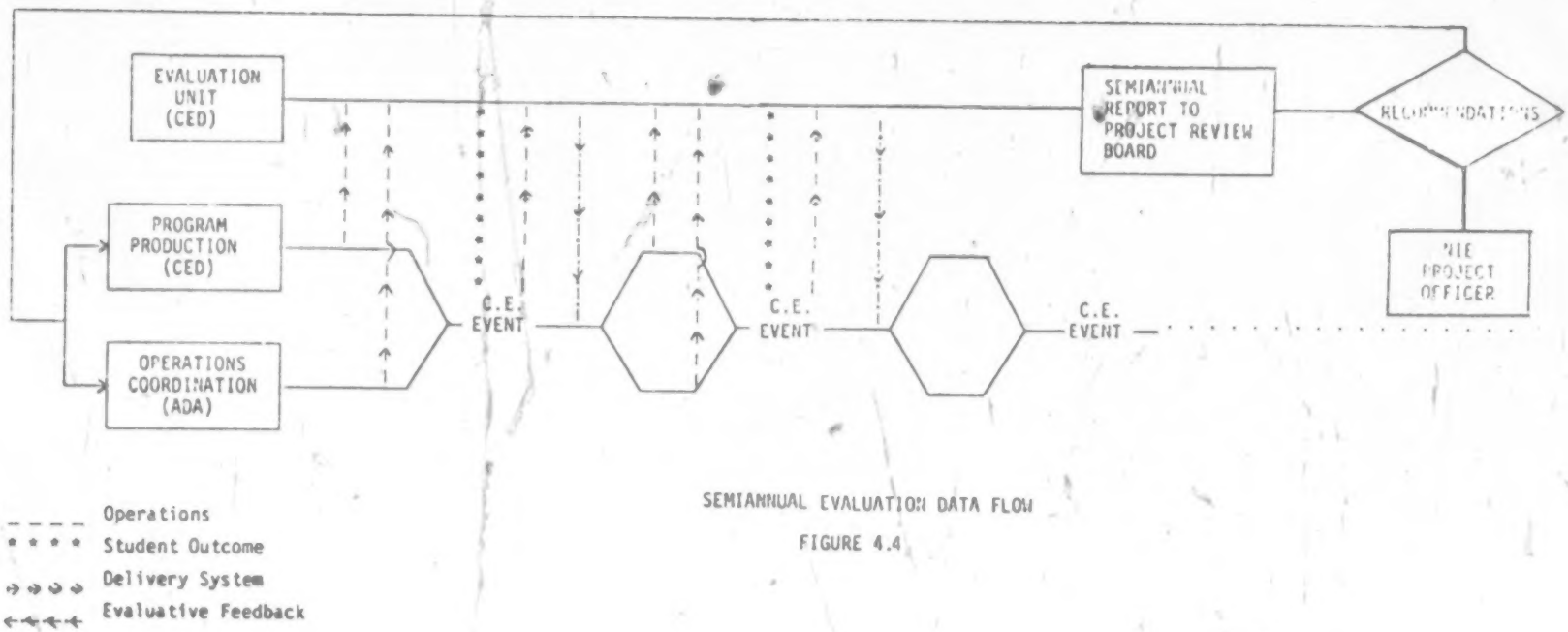
After a great deal of consideration of the various alternative strategies for conducting an evaluation of the proposed project, ADA has decided to subcontract the evaluation to the Center for Educational Development (CED). Although CED will be responsible for the program production, it is anticipated that it can segregate the two activities adequately enough to provide an unbiased formative and summative evaluation of the aggregate demonstration project, including CED's program production staff's performance.

In order to structure the project design with checks which will ensure a reasonably objective evaluation, ADA proposes to create a Project Review Board which would comprise representatives of various professional associations. The Chairperson of that Board would be the Dean of Allied Health at the University of Connecticut, Storrs. The fact that this individual is a Registered Dietitian, but focuses her actitity on allied health in general, should make her an effective linking pin between ADA and the Project Review Board. Because the Chairperson is familiar with the profession of dietetics, she will be able to address the specific issues related to the field while at the same time remain relatively objective regarding the concerns of the Association given her broader perspective (i.e., allied health).

The evaluation unit of CED will be directly responsible to the Project Review Board. The semiannual report of the Project Review Board will go unedited to the NIE Project Officer with copies to the program development unit and the operations coordination unit (see Figure 4.4, "Semiannual Evaluation Data Flow"). It is expected that the result of this structured relationship will be to maximize the advantages of using an evaluation unit which is both intimately familiar with the production unit and in a position to be aware of operational developments on a day-to-day basis because of the co-location of the two units at CED. At the same time, this structure does provide for an element of objectivity because of the reporting relationship of the evaluation unit. In summary, the evaluation unit will act in a capacity similar to an accountant in an organization and the Project Review Board will serve the role of outside auditor.

The determination of the types of data to be collected was stimulated by consideration of the major assets of communications satellites which ADA wishes to use. They are:

- Allow effective investment of the necessary resources to develop high quality programs by increasing the interested audience.
- Reach communications starved audiences; in other words, populations who are either isolated by geography or by a low density of the relevant peer group.
- Bring educational services to the user in a variety of "viewing settings" (e.g., home, hospital, community educational institution).
- Potential for stimulating interprofessional education. Many people



SEMIANNUAL EVALUATION DATA FLOW

FIGURE 4.4

involved in the delivery of CE to professional groups are concerned with the duplication that exists in the delivery of certain content material. Because of the significant capital and user costs involved in communications satellites, they invite necessary sharing arrangements which could cut across disipline lines, thus (perhaps) providing some integration of the professional community.

Based on interest in the above assets, a variety of data will need to be collected in order to evaluate the system's ability to actually make available these potential assets. The major areas of data collection will be the delivery system variables of interest, the student-related and general operations.

The delivery system variables of interest will include:

- Local operations support. There are four types of local operations support that will be utilized in this project. In the eleven western states and the states with SYNCOM IV earth stations, the state dietetic associations (SDA's) will identify local representatives of their organization to handle all local promotion and coordination. The district dietetic associations (DDA's) will identify local members to provide operations support similar to the SDA's for the use of the SECA CTS sites in FY-79 and the SECA PTSS sites in FY-80 and 81. The third type of local operations support will be through a local higher education institution. In South Carolina, ADA will be using the Medical University of South Carolina (MUSC) to handle the entire local operation (i.e., ADA will provide a live feed and all attendant software to MUSC, which will purchase this material for a fixed price and handle all local operations on its own). MUSC will provide the local operations support for CTS-transmitted programs in FY-79, and WESTAR -transmitted programs in FY-80 and -81. The fourth, and last, type of local operations support will be community educational institutions. This form of local support will be used throughout the Appalachian Education Satellite Project network which will receive programs from ATS-6 in FY-79, and from WESTAR in FY-80 and -81. The data collected regarding this variable is expected to assist ADA in planning future institutional arrangements for projects of this nature.
- Viewing setting. There are five types of viewing settings that will be studied within this demonstration project: the home TV utilized by the isolated CE student who receives a broadcast via the local cable network, the local community setting provided by AESP, the hospital viewing setting employed in the 11 western states when using CTS (via the Veterans Administration network), the microwave-interlinked hospitals under MUSC, and the Howard Hughes Medical Institutes served by SYNCOM IV.
- Interactive modes. There are four types of interactive modes of interest in this study: the communications satellites' own audio channel (e.g., CTS and ATS-3 with ATS-6), an incoming WATS line, teletype, and none. There will be sites selected where no interaction will be available in order to provide a control group.

- Size of viewing audience. It is expected that the size of the viewing audience will be an intervening variable when studying the interactive modes discussed above (or vice versa). There will be four categories of audience size: the individual viewer, the small group (two to six participants), the medium-sized group (7 to 20 participants), and large group (21 to 50 participants). The reader will recall from the earlier presentation of the cost sensitivity analysis that the size of the viewing group offered the most dramatic decrease in unit costs per presentation; therefore, this variable's effect on student outcome data and other issues will be carefully reviewed.
- Type of viewing audience mix. There are three types of audience mixes expected to be studied. They are: an audience comprising dietitians only, one of dietitians and lay public, and one of dietitians and other professional groups. It is expected that the audience mix will affect the real time interaction that occurs with program faculty as well as the interaction that takes place among the students before, during and after the program. However, whether this will be a positive or negative effect for the professional group of interest (dietitians) is unknown.
- Facilitator type. There are five types of facilitator arrangements under consideration: a dietitian who is a content specialist in the subject presented in the broadcast, a dietitian who is generally familiar with the subject area being broadcast, an allied health professional who is not a dietitian, a "lay" person who is not involved in any of the allied health professions, and no facilitator. In order to provide a control to study facilitator type, we will randomly include sites which will have no facilitator present. This is also of interest because in an operational system, there will inevitably be occasions when the facilitator will not show up for any one of a variety of reasons; it is of interest to understand the constraints this would place on the student audience. The value of various facilitator types will be significant. Networks such as the Appalachian Education Satellite Project are very community-oriented, as opposed to networks such as the Medical University of South Carolina, the Veterans Administration, etc. where the programs are received and viewed in a medically-oriented environment which makes it relatively easy to secure a clinically competent individual to act as facilitator. If it is necessary to have a facilitator at the local level who is a content expert, the design and cost of future communications satellite programs will be significantly affected.

Data related to the professional student will be mainly of two types:

- Student characteristics. This will involve collecting data to identify students for later follow-up and to provide the usual ses data for the generation of crosstabulations for analysis. It is expected that the ses data will also be of value from a marketing perspective in order to historically review the types of students who appear to be attracted to specific program types, who are "repeaters," who are "volume buyers," etc. It should be

noted that ADA intends to market its CE programs in various fashions; the relationship of student ses characteristics to who purchases the different types of packaged programs would be of interest. For example, of the 39 programs to be developed during the 39-month period, several of them are likely to have strong appeal to dietitians who have a specific area of responsibility (e.g., foodservice administrators). ADA will promote these programs as an identifiable package (e.g., the "administrative package") and market the total group of workshops with a special price for those who register for the entire set of programs. This is valuable not only from a marketing standpoint in terms of developing a more stable revenue flow, but also for the evaluation of other variables. Encouraging package buying will provide a significant number of repeat students who can be followed by the evaluation staff. Because satellite-delivered programs could initially be attractive to students solely because of the involvement of the technology, having a large proportion of repeating students will serve to obviate this problem.

Outcome performance. As has been discussed earlier in the proposed demonstration project narrative, the students will be offered an option to complete various outcome instruments with the payoff that they receive additional CE credit. The willingness of the students to involve themselves in this process and the actual results of their scores will be related to a number of other variables for analysis.

Another performance measure of significant interest to this project will be data regarding the rate of interaction. This will involve collecting data such as the number of questions asked by site and the number of questions students wanted to ask but could not because of the live broadcast's termination. Some of this type of data will be collected by facilitators who will circulate close-ended questionnaires to the student group. Also, CED will employ four part-time graduate students to act as site evaluators who will conduct interaction analysis. This will be done in a manner consistent with the model of analysis developed by Flanders and Amadon's work.

ADA and its subcontractor, CED, are both very interested in the opportunity to create interactive mediated CE programs through the use of communications satellites. ADA is rather concerned that many experimenters observed using CTS have merely replicated a straight lecture format with a "talking face" for extended periods of time and a small amount of question-and-answer period at the end of the program. While this mode is necessary with some of the satellites which cannot provide the rapid switching necessary for seminar-style interaction (e.g., ATS-6), it is necessary to anticipate in the design of programs the advent of other future communications satellites which will provide a greater opportunity to allow for interaction between faculty and student, or student and student separated by distance. ADA recognizes that there are a variety of significant advantages to the use of communications satellites, but one of the major characteristics that

has great appeal for the development of an effective CE delivery network is the opportunity to allow interaction. Therefore, a significant amount of evaluation effort will be devoted to studying the actual availability of opportunity to interact and the significance that opportunity plays in the delivery of CE via communications satellite.

Also of interest to ADA is the type of dietetic practitioner who is attracted to and helped by mediated CE programs. It is expected, because of the variation in learning styles of students, that this will not be an appropriate delivery system for all. Therefore, ADA is interested in gaining a better understanding of the type of student for whom this mode of communication is appropriate.

A considerable amount of data regarding general operations will be collected to monitor performance and to provide accountability. These items will include:

- "Negative peak" of the project. That is, this network will not reach an economic breakeven point for some time. In the interim, when little or no revenue is coming in and there are outgoing expenditures, the negative peak will provide a measure of the financial status of the project.
- Unit cost per student to deliver live CE programming.
- Unit cost per student for live delivery vs. program "spinoffs" (e.g., videocassette study kits).
- Number of dietitians contacted with promotional material vs. the number of initial replies.
- Number of Registered Dietitians making an initial response to promotional material vs. number of dietitians who actually register for a satellite-delivered workshop.
- Ratio of dietitians who buy entire package programs to "occasional" buyers.
- Total time required to produce a finished program.
- Financial resources required to produce each program.
- Technical performance of the satellite system, the related terrestrial lines, and the related video or audio hardware.

Throughout the course of the 39-month project, there will be miscellaneous studies conducted. An example of this could be a study regarding employer attitudes toward the project. If in fact the CE programs offered and the type of delivery system designed do serve to fulfill some needs of the employer group, data regarding this issue should be collected for analysis. CED will use a close-ended instrument to survey a number of employers of the students in order to determine the employer attitudes toward the delivery system under development. A positive outcome from this study would be of great value in promoting the delivery system to employers who are likely to provide the necessary registration fees to allow participation of dietetic practitioners. The related studies and other analyses identified above will form the base for the generation of a variety of papers for the educational research community. The staff at CED have a significant record of publications and it can be reasonably expected that this project will generate several publications of interest to the professional community. All such papers will provide direct credit to the National Institute of Education for its support of this project.

5.0 MANAGEMENT PLAN

5.1 General

In accordance with the requirements of RFP NIE-R-77-0012 and to ensure the effective completion of the Operational Plan discussed above, The American Dietetic Association offers the following management plan. This plan will contain a brief discussion of the staff positions, the estimated labor hours, the organizational design, institutional agreements, project schedule, and a rationale for travel.

5.2 Staff

THIS SECTION REMOVED AT CLEARINGHOUSE
DUE TO PRIVACY REGULATIONS

5.3 Labor

The estimated labor hours listed in Table 5.1 are based on the need to:

- Develop and implement a working agreement with six different communications satellite networks during the project's duration.
- Train and develop groups of volunteer facilitators to coordinate local operations.
- Secure time on the necessary communications satellites to conduct 118 broadcasts.
- Organize and manage the Program Advisory Committee and the Project Review Board.
- Develop and let support subcontracts.
- Develop a market for CE services.
- Produce and pretest 39 two-hour live programs (36 for CE directed toward dietetic practitioners and 3 for the "lay" public).

TABLE 5.1

LABOR* ESTIMATE FOR PROFESSIONAL EFFORT IN THE PROJECT

BY FISCAL YEAR

	FY-78	FY-79	FY-80	FY-81
THE AMERICAN DIETETIC ASSOCIATION				
Project Director	516	2,080	2,080	1,560
Chairperson, Project Review Board	20	80	80	80
Chairperson, Program Advisory Committee	20	80	80	80
CENTER FOR EDUCATIONAL DEVELOPMENT				
Curriculum/Materials Dev. Spec.	0	2,080	2,080	0
Program Evaluation Specialist	0	2,080	2,080	2,080
Data Processing Analyst	0	0	2,080	2,080
TOTAL BY FISCAL YEAR	556	6,400	8,480	5,880
PROJECT TOTAL	21,316 hours			

* Only professional level labor which represents a direct cost to the proposed project is included.

- Conduct formative and summative evaluation of the entire project.
- Develop quarterly reports for NIE management review.
- Develop additional institutional arrangements in support of the proposed project.

5.4 Organization Design

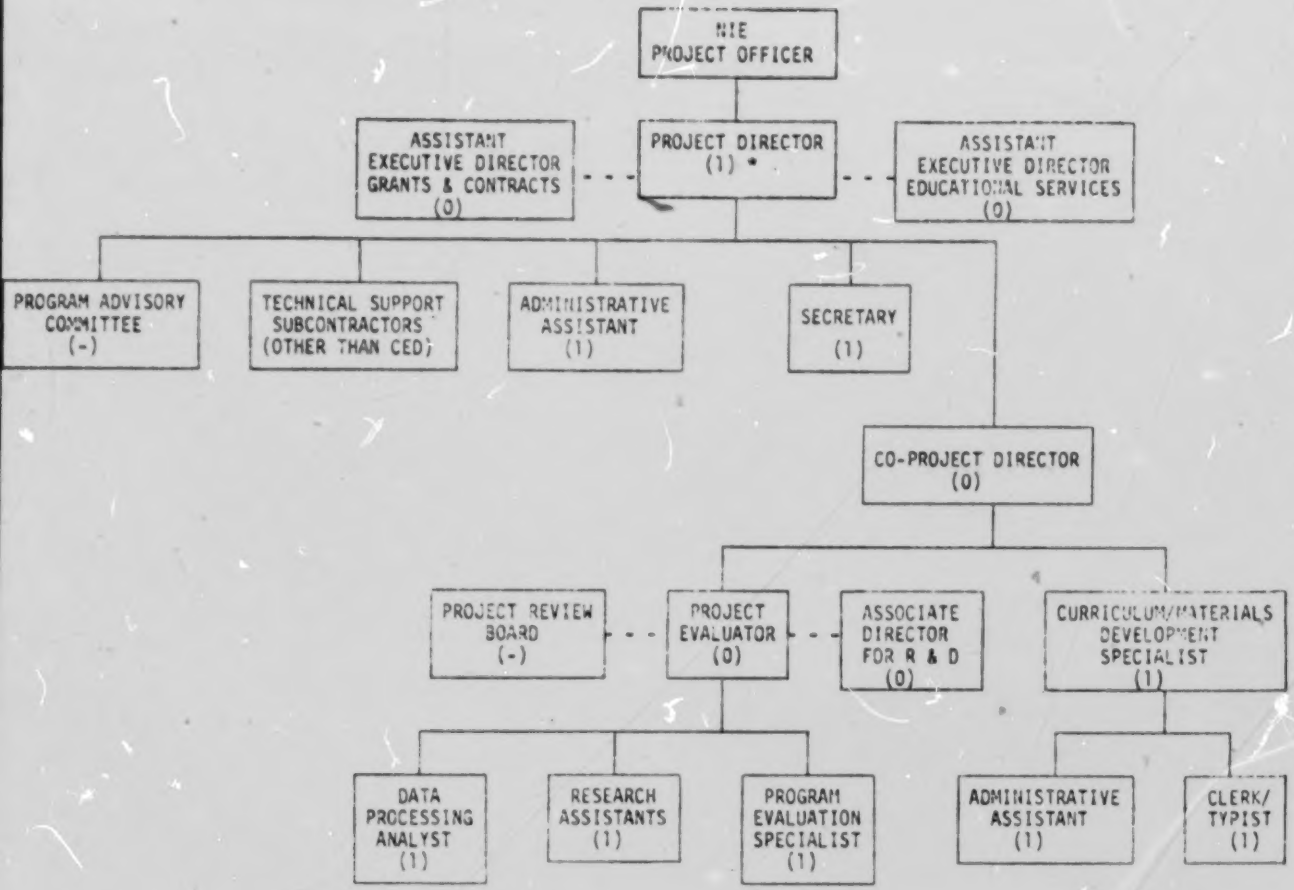
The intent of the project organization displayed in Figure 5.1 is to:

- Assign staff where the responsibilities most naturally fit.
- Provide for the most efficient design within the constraints of the already existing organizations.
- Reinforce the need for an objective evaluation of this project's effort.

Given the experience of the two major organizations represented in the organization design (ADA and CED), the responsibilities are able to be discreetly assigned. In other words, ADA has had over a year's experience with communications satellites; therefore, it is in the best position to be responsible for the technical coordination of this project. Because it is also the organization representing the consumer group of interest - the dietetic practitioners who will be receiving CE services - it is therefore logical to assign the Program Advisory Committee to this area of responsibility. On the other hand, the Center for Educational Development was chosen by ADA as its major subcontractor because it has extensive experience in the development of competency-based CE programs and has an evaluation unit with an extensive track record. Therefore, these responsibilities naturally fall to CED.

The organization presented in Figure 5.1 is adapted to fit within the currently existing organizational design of ADA (Fig.5.2) and CED respectively. Also, in the case of ADA, the relationship of this project to the Department of Grants and Contracts and the Department of Educational Services is indicative of ADA's intent to treat this as a genuinely pre-operational project. In other words, if the reviewer referred to the organizational design for the planning project, he/she would note that the Department of Grants and Contracts fulfilled the principal investigative function for the project and there was no mention of the Department of Educational Services. However, events have developed to where ADA can foresee that communications satellites represent a genuine delivery system for the augmentation of the presently existing CE services. Therefore, it is natural that the Project Director have a dual relationship to the Assistant Executive Directors for both Grants and Contracts and Educational Services.

The reader will also note that the Project Review Board does not report to ADA, but to the subcontractor's evaluation unit. This relationship was deliberately structured to reinforce ADA's intent to perform an objective evaluation of the entire project. Because this project is ideally undertaken as the development of a prototype for the consideration of other professional services interested in the delivery of CE services via communications satellites, it is necessary that the Project Review Board be relatively independent of ADA so that it can perform its auditor-like function without compromise.



* (N) = full-time equivalent charged as direct costs to the project.

PROJECT ORGANIZATION

FIGURE 5.1

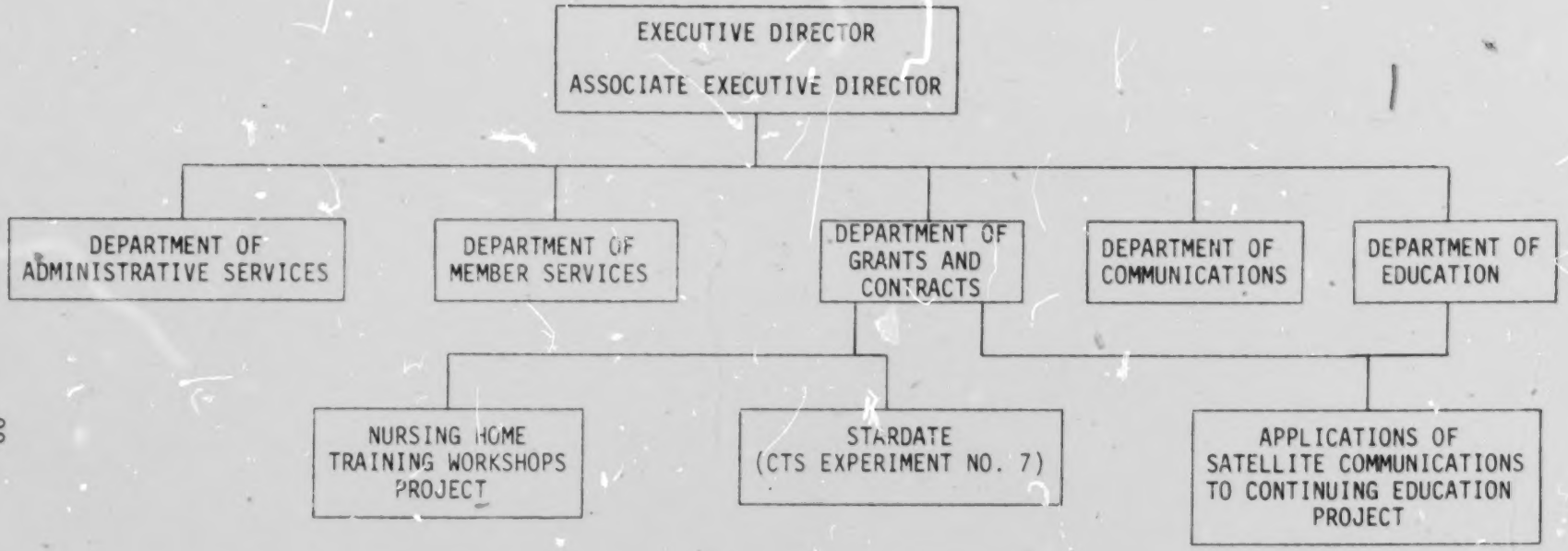

EXECUTIVE DIRECTOR
ASSOCIATE EXECUTIVE DIRECTOR
DEPARTMENT OF ADMINISTRATIVE SERVICES
DEPARTMENT OF MEMBER SERVICES
DEPARTMENT OF GRANTS AND CONTRACTS
DEPARTMENT OF COMMUNICATIONS
DEPARTMENT OF EDUCATION
NURSING HOME TRAINING WORKSHOPS PROJECT
STARDATE (CTS EXPERIMENT NO. 7)
APPLICATIONS OF SATELLITE COMMUNICATIONS TO CONTINUING EDUCATION PROJECT

FIGURE 5.2

ORGANIZATION OF THE NATIONAL HEADQUARTERS
OF THE AMERICAN DIETETIC ASSOCIATION

5.5 Organizational Arrangements

In order to successfully complete as complex a project as that proposed in the Operational Plan (Section 4.0), it will be necessary for ADA to secure the cooperation of a variety of organizations. Some of these organizations will provide specific technical skills to ADA through subcontracts. Other organizational relationships will be more mutually collaborative due to joint interests of the organizations. ADA has been very impressed with the great degree of interest and indications of cooperation throughout the United States as it pursued its planning contract in the development of this Operational Plan and proposal. In fact, the situation is such that ADA has had to shy away from cooperation with various organizations and interests for fear of confounding the evaluation design of the project.

For example, ADA will use the Medical University of South Carolina's microwave network as one form of program distribution. As ADA developed its working agreement with MUSC, it was suggested that the same programs could also be extended to other microwave networks such as those that exist in the State of Ohio. Although the added volume of audience is attractive, the extension of the model and prototype development phases to added markets did not fit with the research design, which called for a small number of practitioners with receive sites near their place of work, as in the case of South Carolina.

Another opportunity available to ADA was cooperation with the Warner Cable System's QUBE experiment in Columbus, Ohio. The Warner Corporation is market testing a new format for cable TV which utilizes a digital interactive panel allowing the viewers in the Columbus, Ohio area to directly respond to real time programming with the effect of participatory TV viewing. While this collaboration would be very interesting and in the long run may prove productive, at this time it did not fit within the research design developed by ADA and CED. Therefore, ADA has chosen not to pursue a working agreement with the Warner Cable System.

Proposed Support Subcontracts/Consultants

- Center for Educational Development. The reader will find in Appendix X a letter of support for ADA's proposed 39-month project to develop a prototype of a CE delivery system utilizing communications satellites. CED has held a major subcontract under the planning activity for this proposal and is expected to continue in its relationship with ADA throughout the duration of the proposed project. The primary responsibilities of CED under this subcontract will be to design, develop, and implement 36 competency-based CE programs which provide an opportunity for vital interaction between the faculty and students using communications satellites. Secondly, CED will be responsible for the conduct of a formative and summative evaluation of the entire project. This will require that the evaluation unit provide ongoing feedback to the program development and operations coordination staff, intermittent summative reports to the Project Review Board, and similar reports to NIE management through the Project Director.

CED occupies 24,000 square feet of space at the University of Illinois in Chicago, Illinois. This facility is located only three miles from the ADA Headquarters, thus facilitating communications between the two organizations. At their facility CED has a photographic unit, an instructional TV unit, a large evaluation unit which has an IBM 370/155 computer for data storage and analysis, a learning resource and development center, and an instructional design planning and development unit. The Center's staff include approximately 40 full-time professionals, which enable CED to meet any educational support need necessary for the successful completion of this proposed project.

The Center has recently completed a four-year study regarding proficiency/equivalency testing in allied health. This has involved the development of a series of prototype simulations which have been used for the testing of competencies and developed as outcomes of CE programs developed by the Center's staff. Also, throughout the year, the Center's educational development unit offers workshops throughout the United States on improving educational practices. The Center's willingness to cooperate, its extensive resources, and its relevant experience base all stand to make the Center for Educational Development an ideal subcontractor for the proposed project.

- Public Service Satellite Consortium (PSSC). ADA will let a subcontract to the Public Service Satellite Consortium in each of the four fiscal years of activity (see Appendix X). The support services required from PSSC will fall into four major areas:

  1. Training of non-technical volunteer personnel in communications. These will be local facilitators used in several of the sites throughout the United States.
  2. General counsel to the ADA Project Director and the CED staff in both the program development and evaluation areas. The expertise provided by PSSC is recognized as valuable to the general operation of the project and, rather than try to duplicate the range of knowledge and experience found within PSSC, ADA prefers to seek counsel from them.
  3. Participation in the Project Review Board composed of non-dietetic professional group representatives. As has been discussed previously, the PRB will perform an auditing function in this project in order to ensure that the project staff and ADA conform with the originally stated intent of developing a prototype delivery system which will be of value to the professional community at large. PSSC's role in this Board will be one of technical counsel and opinion sharing.
  4. Brokering of ADA's use of WESTAR through the Public Television Satellite System (PTSS) and the necessary site arrangements. PSSC has tentatively been identified by many of the PBS station managers in the PTSS as the appropriate organization to provide system management in order to ensure the efficient use of PTSS by the public

service community. It is recognized that the variations throughout the PTSS and the fact that the individual station managers prefer not to deal with a large variety of outsiders provide a situation where PSSC's expertise will be invaluable.

- Nippon Electric Company, Ltd. (NEC). Nippon Electric Company has developed equipment and strategies for freeze-frame TV transmission using a narrow frequency band. The advantages of this have been discussed previously in this proposal. ADA proposes to let a subcontract to NEC for technical support during FY-79, -80, and -81 so that ADA can conduct a total of 8 freeze-frame broadcasts, affecting a total of 16 remote viewing sites during the three-year period. NEC staff will work with the instructional technologists at CED to advise them in the selection of appropriate content material and format in order to test the system's potential, provide the engineering support staff necessary to provide the equipment on an intermittent basis, and provide the relevant hardware in order to conduct the freeze-frame transmissions. NEC has had significant experience with freeze-frame transmissions via CTS on behalf of Satellite Business Systems' Operation Prelude project. Therefore, it is expected that because of the technical staff's capabilities, the equipment, and their experience they are the most appropriate, if not only, firm to which to let this subcontract.

- Satellite Business Systems (SBS). The staff at Satellite Business Systems were contacted during technical interviews for the planning project in preparation of this report. The SBS Marketing Director, Mr. James Brown, expressed his firm's interest in the needs of the public service community. While the public service community does not represent a major market interest to SBS, it is interested in attempting to provide some solution to the communication needs of the public service community. Upon review of ADA's experimental design for both the planning project and the resultant 39-month proposal, Mr. Brown expressed an interest in providing continued cooperation on behalf of SBS (see Appendix X). This consultation would be provided as needed on a no-charge basis (with the exception of any expenses incurred which would be covered by ADA). Mr. Brown's extensive experience in the marketing of information and communications services is expected to be of great value to ADA as it develops its marketing plan more specifically in the future. Because one of the objectives of this project is to develop an economically self-supporting communications system by the end of the last fiscal year (FY-81), the strong marketing skills which Mr. Brown will share with ADA will direct the project toward meeting these objectives.

Network Sharing

- Lister Hill National Center for Biomedical Communications. During FY-78 and FY-79 ADA will require an uplink point for its CTS transmissions. The Lister Hill Center is the major uplink point for the Public Health Service network. ADA has extensive experience in collaborating with Lister Hill Center's staff in the development and implementation of its STARDATE experiments, which were conducted under CTS Experiment #7

managed by the Lister Hill Center. At this time, the Lister Hill Center cannot officially commit to providing this uplink service during FY-79, due to the National Library of Medicine management's consideration of terminating service in December, 1978. However, this management consideration of NLM is considered by ADA and many other knowledgeable organizations in communications satellites to be a passing issue. Therefore, it is expected that the Lister Hill Center will be able to provide the necessary support for ADA's use of its uplink during FY-79.

- NASA-Lewis. Due to the possibility of the CTS uplink at the Lister Hill Center not being available during FY-79 for ADA's CTS broadcasts (see above discussion), ADA has sought a more stable alternative. The CTS Project Manager, Pat Donoughe, has indicated that NASA-Lewis will be able to provide the uplink point for ADA's CTS experiments during FY-79. Rather than apply for approved experimenter status, ADA expects to operate under Experiment #21 (PSSC).

- Veterans Administration. The Veterans Administration has the largest network of CTS receive sites in the United States. They are all located in the eleven western states, with the exception of a mobile earth station which makes a circuit through the United States for broadcast purposes. ADA initiated discussion with VA regarding the shared use of its network in July, 1977. By December, 1977 VA personnel tentatively agreed to proceed with the sharing arrangement. In January, 1978 ADA submitted a proposed working agreement between the VA and ADA (see Appendix X). The VA Deputy Director for Learning Resource Services, Mr. Robert Shamaskin, has indicated that this proposed working agreement is acceptable to the VA and is currently initiating action to facilitate the implementation of this working agreement. The reader will note that that agreement not only covers activity through the end of FY-78, during which time the VA will be actively utilizing its own network, but also alludes to the interest of ADA in using the network beyond the end of the VA's own experiment. During the remainder of FY-78, ADA will conduct the balance of its CTS transmissions through the use of the VA network at 29 of the sites. Initial discussions with the VA support subcontractors (Communications by Design and Public Service Satellite Consortium) have been initiated to make specific preparation for operations.

- Southern Educational Communications Association (SECA). SECA has in place eleven earth stations for CTS. Also, there are 53 PTSS earth stations in the SECA area which are expected to be used during the prototype stage of the proposed project. ADA discussed with SECA management the potential use of their CTS uplink facility in Columbia, South Carolina (if necessary) and their CTS and WESTAR receive sites for the model and prototype stages of this project. Although arrangements will need to be made with the individual station managers, SECA has offered its full support and counsel in order to access the consortium's communications satellite network (see Appendix X). ADA will depend on the Public Service Satellite Consortium to "broker" this

arrangement, as it appears preferable to both the station managers and ADA that one organization be used as an entry point to the various PBS stations involved in public service use of communications satellites at their facilities (see the above discussion of PSSC's role in this proposed project).

- Medical University of South Carolina (MUSC). The staff responsible for the management of the MUSC network of its 50 subscriber hospitals which are connected by an ETV microwave system have indicated their interest in receiving all ADA live broadcasts via communications satellite during the duration of the project (see Appendix X). A review of the budget (included in a separate statement) provided with this report will indicate that MUSC has agreed to purchase ADA programming and attendant courseware for use in its subscriber hospitals. MUSC will receive a live "feed" via the Columbia, South Carolina earth station for CTS and/or WESTAR and then transmit the program to its subscriber hospitals. MUSC will be responsible for all local coordination and program promotion. Because the level of effort provided by this higher education institution is a possible model for replication throughout the United States for ADA's future delivery of CE services to dietetic practitioners, it is of particular interest as an experimental variable for the project.

- Appalachian Education Satellite Project (AESP). ADA has undertaken significant negotiations with AESP regarding the most appropriate working arrangement for the use of their ATS-6 network. During the planning contract, the Principal Investigator attended an AESP program advisory group meeting at which his presentation of ADA's use of the AESP network was received with enthusiasm. ADA finds the AESP objectives to be in complete harmony with its own proposal. This is evidenced in the proposed cooperative agreement with AESP (see Appendix X). The proposal has been reviewed by AESP management who have indicated their interest in pursuing negotiations for a collaborative effort during the duration of the proposed project.

  ADA is particularly interested in this network because of its community orientation. To date, the communications satellite experiments conducted by ADA have been performed in conjunction with networks designed for one group of related professions (health); however, the interest of ADA's membership and the dietetic practitioner community in general is much broader than a focus on the medical community alone. For example, there is a great deal of involvement of Registered Dietitians in public health delivery, a subject of great interest to AESP's community-owned earth station operators. Also, ADA proposes to produce, in conjunction with AESP, three public education programs on nutrition. These would be developed specifically for a "rural" audience. It is expected that these programs could be reused in other areas throughout the United States, but their primary orientation will be toward the Appalachian Region community.

ADA is particularly impressed that AESP is looking beyond the use of the ATS-6 satellite. The commercial carriers are currently being thoroughly investigated for future use and AESP staff have been actively involved in the discussion regarding SYNCOM IV's future. This is of great interest to ADA because of its personal experience with the limitations of the experimental communications satellites and its objective to create a prototype of an operational system which simply cannot be done given the constraints of an experimental satellite.

- Howard Hughes Medical Institutes (HHMI). At the time this report is being filed, the Hughes Aircraft Company continues to plan to launch a two-transponder spacecraft which will be operational in early 1980 (see subsection 3.3 for a more complete discussion of this activity). The only identified network at this time capable of utilizing SYNCOM IV will be the Howard Hughes Medical Institutes network which is located at 12 medical schools throughout the United States. This network is being put in place by Mr. Joseph Castaldo. The ADA Principal Investigator for the planning contract has initiated discussion with Mr. Castaldo regarding ADA's interest in utilizing the network during FY-80 and -81 to develop its prototype stage. While discussions must understandably be very tentative at this time, Mr. Castaldo was able to indicate that he saw no difficulty with ADA's use of the HHMI network, given its ability to financially support its use at a rather modest level.

Local Coordination

As was indicated in subsection 4.4 ("Evaluation") ADA intends to use a variety of local support systems in order to determine which are most functional under specific circumstances. Because of ADA's network of state dietetic associations (SDA's) in all 50 states and district dietetic associations (DDA's) in local communities throughout the United States, the natural choice of a local support organization is its own membership through the SDA and DDA. In order to experiment with this, the SDA's will be used as the coordinating organizations for the remainder of ADA's STARDATE experiments conducted in the 11 western states through the VA CTS network. This working arrangement will be continued through the duration of the proposed project. The reader can review the details of this agreement in Appendix X. Also of note is that this proposal includes in that Appendix letters of strong support for the proposed working agreement by all 11 state dietetic association executives. This working arrangement will provide the local coordination and promotion of all satellite-delivered programs.

Perhaps of equal interest is the fact that the SDA's have indicated an interest in co-investing in the program development and sharing in the resulting revenues. Estimated support from this cooperative agreement is included in the separate document regarding the proposed project's budget. At this time ADA has not approached the necessary state and district associations for coordination of CE programs to be received at the SECA sites and the Howard Hughes Medical Institutes (see Figure 4.3). This is due to

this report containing a proposed project which is subject to an as yet undefined competition. ADA feels it is inappropriate to raise the expectations of too many of its supporting organizations regarding the outcome of this proposed project to NIE. The working agreement with the 11 western states was initiated because of the STARDATE program to be offered there during the duration of FY-78; it was natural that ADA include negotiations regarding the possible conduct of activity in that area under this proposed project.

Other local coordination arrangements will be the responsibility of the Medical University of South Carolina and the Appalachian Education Satellite Project as discussed above.

Program Content Development

This area has been discussed in subsection 4.2. However, it is appropriate to summarily review the status of institutional agreements regarding this issue:

- The National Institutes of Health top management have indicated an interest in the proposed ADA project. ADA would provide an opportunity to distribute research information from the NIH campus while converting it into competency-based CE programming.

- Medical University of South Carolina has indicated its interest in providing the videotaped programs already existing in their library on nutrition-related subjects for conversion into competency-based CE programs for dietetic practitioners.

- The Extension Service at Pennsylvania State University has indicated a similar interest regarding some of their correspondence courses which are appropriate for CE for dietetic practitioners and public education programs on nutrition.

- Several corporations who have already supported CE programs for dietitians throughout the country have indicated that they would be willing to have ADA adapt the program content and delivery for development into competency-based CE programming appropriate for delivery by communications satellite.

- The state and district dietetic associations throughout the United States are continually producing and implementing CE programs. Some of these are of sufficient quality to be adapted under this project into competency-based CE programs appropriate for transmissions via communications satellite.

In summary, within the last six months (the duration of the planning contract) ADA has assembled the foundation for the institutional arrangements necessary to implement the proposed project. There are other possible cooperative agreements which ADA has not discussed in this section

because of their tentative nature. The discussions and agreements noted above are sufficiently firm that NIE can assume their contribution toward the successful completion of the proposed project. In addition, ADA has indicated its intent to transfer the management responsibility for this project from its Department of Grants and Contracts to its Department of Educational Services during the project period. This is a fundamental step toward transforming the prototype into an operational system after the completion of this project.

5.6 Schedule

In order to add to NIE's understanding of the specific details in the ADA management plan and the previous Operational Plan (Section 4.0), a Project Operation Schedule (Table 5.2) has been developed, in addition to a general PERT chart (Table 5.3, "Project Schedule by Month") as requested in the Scope of Work for the Phase I report ("C. Product Format-Report Requirement," Part 5, Page 6). ADA is familiar with the NIE Program Management System (PMS) and holds that reporting system in high regard. ADA expects to use the PMS system of reporting to NIE management during the performance of the proposed project, as can be seen in Tables 5.2 and 5.3. ADA has designed this proposed project to be completed within a 39-month period. The plan is based on an assumption that the contracts will be signed by July 1, 1978 and concluded by September 30, 1981 (the end of FY-81, which was identified as the final support year in the Scope of Work's Section C, Part 7). It should be noted that ADA's successful completion of this project in a timely fashion will be contingent upon the availability of the full 39-month period to perform the outlined tasks.

CONFIDENTIAL

DEPARTMENT OF GRANTS AND CONTRACTS

APPENDIX II

THE AMERICAN DIETETIC ASSOCIATION

STARDATE PROJECT SURVEY

Please check the answer that is most appropriate. If none of the answers are appropriate, please check the one that comes closest and attach a note of explanation.

1. Did you receive the STARDATE brochure? ___ Yes ___ No ___ Don't know 1

   If "yes," did you return the attached card requesting a prospectus? ___Yes ___No 2

2. The STARDATE workshops are being held in Bethesda, Maryland, Denver, Colorado, and Seattle, Washington. Approximately how far would you have to travel to attend the workshop closest to you? 3

   ___ 10 miles or less
   ___ 11-50 miles
   ___ 51-100 miles
   ___ 101-150 miles
   ___ 151-200 miles
   ___ 201-250 miles
   ___ 251-300 miles
   ___ Over 300 miles

3. What kind of transportation would you use to get to the workshop?

   ___ Car ___ Bus ___ Train ___ Airplane ___ Don't know 4

4. What would you estimate your travel time to be to get to the workshop?

   ___1-2 hours ___3-4 hours ___5-6 hours ___Over 6 hours 5

5. Generally speaking, are you able to take off time from work to attend a workshop like STARDATE?

   ___ Yes ___ No 6

6. Do your family responsibilities usually prevent you from attending these types of workshops?

   ___ Yes, they do. ___ No, they do not. 7

7. Do you plan on attending a STARDATE workshop? ___ Yes ___ No 8

   Which workshop would you be MOST interested in attending?

   (CHECK ONE ONLY): ___ Financial Management for Nutritional Care 9
   ___ Patient Nutritional Assessment

8. Do you have friends who plan on attending a STARDATE workshop? ___Yes ___No 10

   If "yes," would their going influence your decision to attend the workshop?

   ___ Yes ___ No 11

9. As you know, the STARDATE workshops allow interactive "television" communication between speakers and the audience. Does the thought of being seen by other people on a television screen appeal to you?

   ___Yes, I find it very appealing. ___No, I do not find it very appealing. 12
   ___It doesn't really matter to me.

10. Do you think this interactive televised communication could be an effective way of conducting workshops?

___ Yes ___ No ___ I don't know. 13

11. Have you completed 75 continuing education hours for your current five-year period?

___Yes, I have completed the hours. ___No, I have not completed the hours. 14

Below are some factors that may influence people's decisions to attend or not to attend the workshops. Could you please tell us if any of the items listed below have played a part in your decision?

		YES, THIS IS TRUE	NO, THIS IS FALSE	THIS WAS NOT A FACTOR IN MY DECISION	I DON'T KNOW ABOUT THIS	
a.	This is a good time of the year for me to go					15
b.	The faculty involved in the workshop are of interest to me					16
c.	The topics for STARDATE coincide with my work and/or interests at the present time					17
d.	I do not get paid when I attend workshops					18
e.	I need to train/hire someone to fill in for me at work when I attend a workshop					19
f.	Workshop attendance takes away from my vacation and/or sick time					20
g.	I have read articles written by the speakers					21
h.	I would like to attain the objectives outlined in the brochure					22
i.	My work load is too great to permit me to attend a workshop at this time.					23
j.	I think the sessions have been scheduled too closely together					24
k.	My family responsibilities prevent me from attending a workshop at this time					25

	YES, THIS IS TRUE	NO, THIS IS FALSE	THIS WAS NOT A FACTOR IN MY DECISION	I DON'T KNOW ABOUT THIS	
l. I do not get reimbursed when I attend workshops	_____	_____	_____	_____	26
m. The workshops are too far away	_____	_____	_____	_____	27
n. The speakers or the workshop leaders are friends of mine	_____	_____	_____	_____	28
o. The content of the STARDATE workshops complements other workshops I've attended recently	_____	_____	_____	_____	29

What was your first reaction when you received the STARDATE brochure?

___ I was very excited to hear about STARDATE. 30
___ I was somewhat interested to hear about STARDATE.
___ I had no feelings one way or the other about STARDATE.
___ I did not like the idea of the STARDATE Project.

How do you feel about continuing education via satellite?

___ I am very excited about it. 31
___ I am somewhat interested in it.
___ I have no feelings one way or the other.
___ I do not like the idea.

In order to be able to interpret your answers to the previous questions, we would like you to answer some questions about yourself. Please help us by checking the appropriate answer.

---

1. Age: 32

___ 21-25	___ 36-40	___ 51-55
___ 26-30	___ 41-45	___ 56-60
___ 31-35	___ 46-50	___ Over 60

2. In what year did you become a Registered Dietitian? 19___ 33

3. Length of time employed as a dietitian: 34

___ 0-5 months	___ 2-5 years	___ 11-20 years
___ 6-23 months	___ 6-10 years	___ Over 21 years

4. Number of hours per week you are employed as a dietitian: 35

___Over 35 hrs./wk. ___18-35 hrs./wk. ___1-18 hrs./wk. ___Not employed or Retired

5. Type of employer (check one only): 36

___Acute care facility	___Long-term care facility	___Public health agency
___Community program	___Clinic	___College/university
___School foodservice	___Other (please explain)_____	

6. How many people live in the city in which you work?

___ 5,000,000 or Over	___ 100,000-499,999	37
___ 3,000,000-4,999,999	___ 50,000-99,999	
___ 1,000,000-2,999,999	___ 10,000-49,999	
___ 500,000-999,999	___ Less than 10,000 or Rural	

7. Which of these categories BEST describes your major work function?

___Clinical ___Administrative ___Teaching ___Consultant 38
___Clinical, Administrative, and Teaching combined ___Public Health
___Other (please describe) _____

8. What advanced degrees do you hold?

___M.S. ___M.P.H. ___M.F.M. ___M.E. ___M.B.A. ___Ph.D. ___Ed.D. 39
___None ___Other (please list) _____

9. Total gross annual FAMILY income (include all members of your household):

___ None	___ $10,000-10,999	___ $17,000-17,999	40
___ $0-1,999	___ $11,000-11,999	___ $18,000-19,999	
___ $2,000-3,999	___ $12,000-12,999	___ $20,000-24,999	
___ $4,000-5,999	___ $13,000-13,999	___ $25,000-29,999	
___ $6,000-7,999	___ $14,000-14,999	___ $30,000-39,999	
___ $8,000-8,999	___ $15,000-15,999	___ $40,000-49,999	
___ $9,000-9,999	___ $16,000-16,999	___ Over $50,000	

10. Total gross annual PERSONAL income (if different from above):

___ None	___ $10,000-10,999	___ $17,000-17,999	41
___ $0-1,999	___ $11,000-11,999	___ $18,000-19,999	
___ $2,000-3,999	___ $12,000-12,999	___ $20,000-24,999	
___ $4,000-5,999	___ $13,000-13,999	___ $25,000-29,999	
___ $6,000-7,999	___ $14,000-14,999	___ $30,000-39,999	
___ $8,000-8,999	___ $15,000-15,999	___ $40,000-49,999	
___ $9,000-9,999	___ $16,000-16,999	___ Over $50,000	

Please enter the last four digits of your home telephone number here: ___ ___ ___ ___

STARDATE PROJECT
THE AMERICAN DIETETIC ASSOCIATION

POST-WORKSHOP ATTITUDE QUESTIONNAIRE

Thank you for participating in this ADA STARDATE workshop. Now that you have had an opportunity to complete this experience, we would appreciate it if you would answer a few questions that will add to our understanding of your attitude toward this type of educational program.

In order to protect the confidentiality of your response, do NOT put your name on this questionnaire. You will recall that you completed a similar questionnaire before the first session of this workshop. So that we may compare your responses on these two questionnaires, please enter the last four digits of your home telephone number in the upper right hand corner of this page of the questionnaire.

When you have completed this questionnaire, please hand it in to your workshop facilitator.

In which workshop did you participate? ___Financial Management for Nutritional Care
___Patient Nutritional Assessment (1)

Did you participate in all sessions of the workshop? ___Yes ___No (2)

In your opinion, what were the three most positive aspects of this workshop?

1. _____
2. _____
3. _____ (3)

List three things you would change to improve future presentations of this workshop:

1. _____
2. _____
3. _____ (4)

Now that you've completed the workshop, what is the maximum registration fee you would have personally been willing to pay had you known (when registering) as much about the program as you do now?

___$0	___$21-$30	___$51-$60	___$81-$90	___I would not have registered
___$1-$10	___$31-$40	___$61-$70	___$91-$100	
___$11-$20	___$41-$50	___$71-$80	___Over $100	

(5)

Assume that your employer knows as much about this workshop as you do now. What do you think is the maximum registration fee your employer would have been willing to pay so that you could attend this workshop?

___$0	___$21-$30	___$51-$60	___$81-$90	___Not applicable
___$1-$10	___$31-$40	___$61-$70	___$91-$100	
___$11-$20	___$41-$50	___$71-$80	___Over $100	

(6)

The PRIMARY BENEFIT I received from attending this workshop was (CHECK ONE ONLY):

___I learned about communications satellite applications to the delivery of educational services.
___I received some continuing education hours which I can apply toward the maintenance of registration.
___I increased my understanding of the subject matter presented in this workshop.
___I enjoyed the company of my friends/colleagues.
___I enjoyed hearing talks given by the workshop instructor.
___Other (please describe):

_____ (7)

Below are some statements about this STARDATE workshop. Please place a check in the column which most closely identifies your level of agreement with the statement.

	Strongly Agree	Agree	Neutral/ No Opinion	Disagree	Strongly Disagree	Not Applicable	
By experimenting with new technologies like STARDATE, ADA will increase the status of dietitians in the health care community.....							(8)
If the workshop instructor could only have heard my questions, but couldn't have seen me, this would not have detracted from the quality of my learning experience.....							(9)
Because the workshop utilized a lot of sophisticated technology, there were a lot of technical interruptions.....							(10)
I would pay a higher registration fee to attend a mediated workshop (such as this STARDATE workshop) conducted by a nationally recognized expert that I would for an "in-person" workshop conducted by a less expert but qualified person.....							(11)
Because the communications satellite used to broadcast this workshop allowed the participant and instructor to interact audiovisually (i.e., see and talk to each other), it was a good learning experience.....							(12)
If ADA offered programs like STARDATE in the future, I would attend them in order to receive continuing education in my field.....							(13)
A mediated workshop where the student and instructor can see and hear each other will never be able to provide the same quality of learning experience as an "in-person" workshop where the instructor and participant are in the same room..							(14)
I support anything ADA can do to improve the availability of continuing education opportunities for dietitians.....							(15)

	Strongly Agree	Agree	Neutral/ No Opinion	Disagree	Strongly Disagree	Not Applicable	
It would not have detracted from my learning experience if I had only seen and heard the instructor's lecture but she could not have received my questions.....							(16)
Even though I'd have to travel to this workshop site again, I'd attend future workshops similar to this one.....							(17)
Now that I've participated in a STARDATE workshop I am very excited about its implications for continuing education services.....							(18)
I don't think many dietitians would be willing to attend mediated workshops as a regular source of their continuing education.....							(19)
I think ADA should sponsor regular, frequent continuing education programs like STARDATE.....							(20)
I would pay a higher registration fee to attend an "in-person" workshop conducted by a less expert but qualified instructor that I would for a mediated workshop conducted by a nationally recognized expert.....							(21)
I think the ADA STARDATE experiment offering continuing education to dietitians via communications satellite is a waste of ADA's time and money.....							(22)
I think that having the local facilitators who were familiar with the instructor's presentation was an important factor in my understanding of the workshop material.....							(23)
I think the registration fee for this workshop was too low.....							(24)
I think communications satellites could increase the amount and types of continuing education experiences that are available to dietitians.....							(25)
If it cost ADA extra money (i.e., more than the usual "in-person" format) to use a communications satellite in order to offer this workshop, I don't think ADA should have used the satellite...							(26)
Now that I've participated in this workshop, I would recommend other similar STARDATE workshops to friends/colleagues as valuable learning experiences.....							(27)

Now that you have had an opportunity to experience a continuing education workshop via communications satellite, you have some understanding of the potential of this system. Consider that potential for a moment; then list and describe some other subjects related to the practice of dietetics which could be presented through this system.

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

_____

4. _____

_____

_____

FOCUS GROUP INSTRUMENT

1. WHAT ARE THE EXISTING METHODS OF OBTAINING CONTINUING EDUCATION IN YOUR REGION?
   - How well does this meet your needs?
   - How does your role determine continuing education needs?
   - Does industry do any continuing education in your region?
     - Is it any good?
     - Should industry do more?
     - Why?
   - What does your state organization do for continuing education?
     - Are their programs good?
     - What should they do that they don't do?
   - What about your local organizations?
   - Your national organizations?
   - How much continuing education is offered on your work site?
   - How much should be offered?
   - How free are you to go to these programs?
     - Do you get time off?
   - What about continuing education programs off your job site?
     - How free are you to go to these?
     - Will your organization pay for your trips to get CE?
     - Should they?
     - What did you spend in the last year for CE travel?

2. WHAT IS YOUR OPINION OF MEDIATED FORMS OF INSTRUCTION (E.G., COMPUTER-ASSISTED INSTRUCTION, VIDEOTAPE, ETC.)?
   - What modes of delivery of continuing education have been used in your region?
   - Describe your experiences with audio tape.
     - Videotape.
     - CAI.
   - What works best?
   - How much did you spend for actual CE charges last year?
   - Would you spend more on CE if you didn't have to travel as much?

3. WHAT IS THE MECHANISM FOR OBTAINING CONTINUING EDUCATION CREDIT?
   - How do you obtain the credit you need?
   - Are programs evaluated?
     - Should they be?
   - Should the requirements be changed?
     - How?
   - Do many people go beyond the minimum?
     - Should "dietitians' recognition awards" be given for dietitians who go beyond the minimum?
   - How do you assess your needs for CE credit?
     - What subjects did you choose to study for your last year's CE?
     - Did your client's needs dictate your choice?
     - Do "food fads" dictate your choice for CE?

4. TO WHAT LEVEL IS THE PROFESSION OF DIETETICS ADDRESSING ITSELF?
   - Do those of you in hospital-based practices participate in health care team activitivies?
     - Do you make rounds?
   - How does your role determine your needs for CE?
   - How does the changing needs of the consumer affect your needs for CE?

FOCUS GROUP INSTRUMENT (2)

5. HOW SOON DO NEW DISCOVERIES MAKE THEIR WAY INTO CE PROGRAMS?
   Is it fast enough?

6. HOW DOES THE PRESENT SYSTEM OF CE MEET YOUR NEEDS?
   Is CE just a "hassle," or does it really help?
   Does CE upgrade the profession?
     How would you change the present system?
     How would different forms of education (mediated or etc.) help fill your needs?
   Should informal learning be regarded for CE credit?
   Do you have any plans to change your current form of practice?
   Would other topics, such as management training, help you make such a change?
     Would interactive forms of CE help you in such topics of education?

CED CENTER FOR EDUCATIONAL DEVELOPMENT

CARD 1
Col. 5 = 1

SURVEY ON CONTINUING EDUCATION NEEDS

The American Dietetic Association has asked us to survey their members to learn about attitudes, experiences, and needs concerning continuing education. By completing this questionnaire, you will help ADA planners decide what changes members would like to see in continuing education, and what new forms of continuing education are needed to fulfill the requirements of dietitians working and living in different situations.

We do NOT record individual responses, just totals. The number on this survey tells us who responded. We estimate it will take you about 30 minutes to complete this survey. Please do it today, so that you can drop it in tomorrow's mail. Thanks.

Please place a check in the appropriate box, or write the information requested on the line provided. You may use pen or pencil but please write or print legibly! Disregard the numbers in parentheses - these are for coding purposes.

1. What is the title of your current position (or your most recent position if you aren't currently employed)?

_____

Col 6 2. What is your highest academic degree?

(1){ } B.A./B.S.
(2){ } M.A./M.S.
(3){ } Ph.D./Ed.D.
(4){ } Other (specify) _____

7 3. How did you obtain your clinical experience required for dietetic registration?

(1){ } Coordinated undergraduate program
(2){ } Traineeship
(3){ } Master's degree with experience
(4){ } Other _____

8 4. Did you take the registration exam?

(1){ } Yes
(2){ } No

9 5. Indicate your current employment status in the field of dietetics.

(1){ } Full-time (greater than 35 hours per week)
(2){ } Part-time (20-35 hours per week)
(3){ } Part-time (0-19 hours per week)
(4){ } Unemployed

10-11 6. How many total years of work experience do you have as a dietitian?

_____

12-13 7. How many total years of work experience do you have as a REGISTERED Dietitian? _____

14 8. Age:

(1){ } 20-29
(2){ } 30-39
(3){ } 40-49
(4){ } 50-59
(5){ } 60-69
(6){ } 70 or over

15 9. Sex:

(1){ } Male
(2){ } Female

16-18 10. Present yearly salary, rounded off to the nearest $1,000.

_____

19 11. What is the FIRST number in your Zip Code?

_____

20 12. Check the appropriate area in which you are currently employed as as registered dietitian (or were last employed, if you are not now employed).

(1){ } Rural area
(2){ } Large city or suburb
(3){ } Small town (under 20,000)

21 13. Select the primary focus of the majority of your professional responsibilities (or of your last job, if not currently employed).

(1){ } Administrative/Management
(2){ } Clinical/Therapeutic
(3){ } Private Consultant
(4){ } Teaching
(5){ } Research
(6){ } Other _____

22-23 14. Describe the primary area of your professional work (or your last job, if not currently employed).

(1){ } School: teaching
(2){ } School: food service
(3){ } Hospital: food service
(4){ } Hospital: non-food service
(5){ } Commercial food service
(6){ } Private consultant
(7){ } Public health/public program
(8){ } Community nutrition
(9){ } Research lab
(10){ } Other _____

24-25 15. How many Registered Dietitians other than yourself work in your unit (full-time equivalents)? _____

16. Please tell us how many continuing education hours you earned in each of the years listed. Then, in the "COST" column, estimate to the nearest $100 how much you spent for these hours (including travel, babysitting, tuition, and any costs your institution paid).

		CE HOURS EARNED	COST	
26-27	1977	_____	_____	28-3
31-32	1976	_____	_____	33-3
36-37	1975	_____	_____	38-4
41-42	1974	_____	_____	43-4
46-47	1973	_____	_____	48-5
51-52	TOTAL OF ABOVE	_____	_____	53-5

17. Of the TOTAL number of hours listed under question 16 above, tell us how many you earned by each method listed below. If you did not use a method, put a "0" in that blank.

56-57 1. District meetings _____
58-59 2. State and national meetings _____
60-61 3. Seminars, workshops and lectures not at district, state or national meetings _____
62-63 4. Classroom degree programs _____
64-65 5. Classroom non-degree programs _____
66-67 6. Correspondence courses _____
68-69 7. Journal clubs _____
70-71 8. Audio tape programs (including study guides) _____
72-73 9. Video tapes, films, and slide tape programs _____
74-75 10. Other _____

CA[redacted] 2
Col. 5 = 2

18. Please rank the methods you think you would prefer to use for Continuing Education. Place a #9 after the method you would MOST LIKE to use, a #8 after your next favorite method, and so on to #1 for your LEAST PREFERRED METHOD. Please rank ALL methods, even if you've never tried them.

6 District meetings { }

7 State and national meetings { }

8 seminars, workshops and lectures (not at district, state or national meetings) { }

9 Classroom degree programs { }

10 Classroom non-degree programs { }

11 Correspondence courses { }

12 Journal clubs { }

13 Audio tape programs (including study guides) { }

14 Video tapes, films and slide tape programs { }

In this section, please read each statement and decide whether you strongly agree, agree, disagree, strongly disagree, or just don't know. If the statement doesn't apply to you, or if you have no opinion, then check the "doesn't apply to me" column, BUT PLEASE CHECK SOMETHING FOR EACH STATEMENT.

		STRONGLY AGREE 1	AGREE 2	DISAGREE 3	STRONGLY DISAGREE 4	DOESN'T APPLY 5
15	I have no difficulty getting 75 hours of CE credit in 5 years.					
16	Home responsibilities (such as small children) present a big problem to me in getting my CE credit.					
17	I think the 75 hour requirement should be increased.					
18	I would prefer to have more CE offered on weekends.					
19	I would prefer to have more CE offered during the days.					
20	I would prefer to have more CE offered during the evenings.					
21	CE programs are usually held at convenient times for me.					
22	Large institutions seem to be more willing to reimburse you for CE credit than small institutions.					
23	Most CE I've attended is not relevant to my needs.					
24	Most CE is too specialized.					
25	Most CE is too theoretical.					
26	There's not enough CE offered in my area.					
27	I have to spend too much time getting 75 CE hours, compared to what I'm learning.					
28	I have to spend too much money getting CE hours, compared to what I'm learning.					
29	I care more about the knowledge I gain from CE than about the number of hours I receive.					
30	In the past I've attended more than 75 credit hours in a 5 year period.					
31	In the future I'd like to attend more than the required 75 hours of CE.					
32	I gain more relevant information on nutritional issues from ADA journals than from other sources.					
33	Other health professions journals are more helpful to me in updating my dietetic knowledge than the ADA publications					
34	The ADA facilitates my need for CE.					
35	State and local organizations should increase the frequency of CE offerings.					
36	District and national organizations should increase the frequency of CE offerings.					
37	The ADA should have a toll free "hot line" so I can get immediate authoritative responses on current topics.					
38	I'd be willing to pay $10 more per year for ADA membership if ADA gave me regular CE programs in my area.					
39	I'd be willing to pay $35 more per year for ADA membership if ADA gave me regular CE programs in my area.					
40	A lot of learning I get from CE comes from professional discussions with collegues in group situations.					
41	There are many activities I'd go to if I were more sure of getting subsequent approval for CE credit.					

		STRONGLY AGREE 1	AGREE 2	DISAGREE 3	STRONGLY DISAGREE 4	DOESN'T APPLY 5
42	My employer will usually release me when I want to attend a CE program.					
43	My employer is too hard to convince when it comes to letting me attend a CE program.					
44	My employer will usually pay for at least part of my CE expenses.					
45	I never go to CE courses I'm not interested in just to accumulate hours.					
46	The ability to ask questions and discuss during and after a CE program adds a great deal to CE.					
47	If I had my choice, I'd attend a CE experience that gave me an opportunity to interact with the presenters and with my peers, rather than a CE experience that involved just listening.					
48	Audio tapes are a good way of getting CE.					
49	I prefer CE lectures where audience participation is minimal.					
50	I think CE courses need periodic evaluation to improve them.					
51	There should be a formal test as a part of each CE program to assess whether dietitians have accomplished the objectives of the program.					
52	CE credit for each program should be awarded on the basis of attendance <u>plus</u> performance on a post-test, rather than on attendance <u>alone</u>.					
53	Sometimes I don't even bother applying for CE hours for programs I've attended because I don't need the hours.					
54	I'd pay $5 a year for a service that would list all of the CE possibilities in my area.					
55	I'd pay $25 a year for a service that would list all of the CE possibilities in my area.					
56	I think ADA members who <u>prepare</u> presentations should receive CE credits for preparing that presentation.					
57	If an ADA members calls himself/herself a specialist, he or she should be required to have at least a portion of his or her CE hours in that specialty.					
58	If CE really met my needs, I'd be willing to spend up to $5 per credit hour.					
59	If CE really met my needs, I'd be willing to spend up to $25 per credit hour.					
60	I prefer to take CE all by myself.					
61	I prefer to take CE in small groups.					
62	I prefer to take CE in large groups.					
63	Too much CE is aimed at clinical dietitians, and not enough is directed to other areas.					
64	CE should include more administrative areas.					

		STRONGLY AGREE 1	AGREE 2	DISAGREE 3	STRONGLY DISAGREE 4	DOESN'T APPLY 5
65	I'd take a CE program in assertiveness training if it were offered.					
66	Enough CE materials exist in interviewing techniques and interpersonal communication.					
67	Industry sponsored CE programs have been very helpful to me.					
68	I think industry uses CE just to "plug" their products.					
69	I look to my supervisor to suggest areas for my concentration in CE.					
70	There should be CE available for me so that I can deal with public education.					
71	I'd travel as far as my state capital for CE related to my needs.					
72	I'd travel a distance far enough to necessitate air travel for CE relevant to my needs.					
73	I'd like more CE on basic biochemical issues.					
74	I'd like more CE on evaluation skills.					
75	I'd like more CE on curriculum development.					
76	I'd prefer a community college setting rather than at a university for CE.					
77	I prefer a hospital setting rather than an industrial setting for CE.					
78	CE is a help to me in realizing my career aspirations.					
79	Sometimes I don't even apply for CE credit I'm entitled to because I don't think I learned anything from the experience					
80	Locally produced CE materials seem better for my needs than nationally produced materials.					

ASSUMPTIONS AND SOURCES USED FOR COST ANALYSIS
(Figures 3.1-3.3; Tables 3.1-3.9)

The continuing education experience utilized in designing these models was the "Nutrition Assessment" workshop conducted on Saturday, February 4, 1978; this workshop was transmitted via satellite to three sites, employing duplex A/V in two of the sites and simplex A/V in the third. Two major subjects were presented: how to use POMR (the Problem-Oriented Medical Record) and how to use anthropometric measurements (skinfold thickness) to determine nutritional status. The students were required to demonstrate their competency in these areas after watching the tools be correctly used by the faculty via satellite and live local facilitators at the remote studios.

Using this competency-based workshop as a starting point, the following assumptions were made in designing the cost models:

General Assumptions

1. Approximately five contact hours with the students were required for the workshop described above. This would be necessary for any of the interactive systems compared in the tables. For the non-interactive "packaged" delivery systems, this information could be compressed into two hours while accomplishing the desired program objectives. A 50-page correspondence course (including 20 pages of visual aids) would be an equivalent CE experience.

2. Because the workshop was in a competency-based format, the following are essential components of all delivery systems discussed:
   a) Some type of visual material (i.e., diagrams or slides) to illustrate how the techniques are to be employed. The cost of the materials has been included in all cases.
   b) An opportunity for the student to be able to practice and be evaluated on the skills he/she learned from the CE experience. The cost of this has been provided for in all cases: the student would demonstrate to faculty, facilitators, or local dietitians who have these skills that they can use these tools.

3. Although a mixed media format (live/film/tape/slide) was used for the original workshop, no costs for the mixing of media (with the exception of essential visual aids) were used in building the tables. The video-tapes used for the workshop were "trigger tape" simulations; these simulations would alternatively be presented live or in a written/spoken case study format. Care was taken to keep the models as free from a mixed media format as possible so as not to confound the cost comparisons.

4. All students would be taking this CE program on their own time (e.g., a Saturday); therefore, no economic opportunity costs have been included in these tables.

5. All students would live within 50 miles of the program site; since these travel costs are negligible, they have not been included. Students would need to travel in all cases: for the two formats not using a central convening point (correspondence courses and audio cassettes), students would travel to a local dietitian's workplace or home to have their performance ability reviewed.

ASSUMPTIONS (2)

6. Program replications would occur on successive days.

Production Assumptions

7. Program and evaluation development is assumed to require 10 days of work by curriculum staff at $100/day. A major assumption here is that the program would be based on a modification of already-existing content material (i.e., no completely new material would have to be developed). The evaluation would include a pre- and posttest of content understanding and a review of the students' skill performance. Since these would require few pieces of paper and would be used regardless of the delivery system, the cost of their duplication (and mailing, in some cases) has not been included in the tables.

8. Eighty slides were used in the workshop. The artwork for these slides costs about $50 for each slide or diagram.

9. It is assumed that volunteer talent would be used in the production of audio and videotapes.

10. Twelve hours of studio time are needed to make one hour of usable tape. This includes time for editing while recording, but does not include any post-production work.

11. Studio time for production of videotapes costs approximately $200/hour, using a university studio.

12. A videocassette master on 2" tape stock costs $280/hour.

13. Audio tape master costs include: $50/hour for studio time (including mixing) and $6.50/hour for tape stock.

14. A slide/tape program master (one hour of audio tape plus 80 slides) costs $10,000. This price includes all artwork, a producer's time, and all studio and technician time.

Distribution Assumptions

15. Xerox copies of program software cost 6¢ per page.

16. 3/4" videocassette dupes cost $25/hour each; slide/tape package dupes cost the same.

17. Two-hour audio cassette dupes cost $3/each.

18. Classroom rental at a university is based on $1/day/person; rental of audience space at a public television station (for LSA/V-WESTAR) averages $125/day.

19. Renting a slide projector and audio tape recorder at a university would cost about $20/day.

ASSUMPTIONS (3)

20. Renting a videocassette playback unit from a university would cost $25/day; each monitor would cost $25/day.

21. Twenty students require one TV monitor plus one facilitator (or faculty); 50 students require two monitors plus two facilitators; 100 students require three monitors/facilitators.

22. Travel for live workshop format is based on the following: the airfare for a "circuit" of the sites (Chicago-New York-D.C.-Atlanta-Dallas-L.A.-San Francisco-Chicago) is $615. Each faculty (total of two) member conducts a workshop on one day, then has the next day in the same city to grade tests/rest/travel. This would require 12 nights' hotel stay at $40/night/person, plus 14 days' per diem at $20/day/person. A limit of two weeks' travel at one time (before returning to Chicago, the origination point) has been placed on this system.

23. A two-way audio line via AT&T averages $22.02/hour/site.

24. A two-way audio line via WESTAR averages $117/day for six sites (discount rate).

25. Simplex A/V via AT&T has several components: mileage at 75¢/mile/hour (total $2,743.50/hour for six sites); station connection at $80/hour/site; local channel at $500/use/site ($1,000/month maximum per site); switching at $9/use/site; audio talkback at an average of $22.02/hour/site.

26. Simplex A/V via WESTAR has several components: from studio to uplink via microwave at $400/day (plus $125 for each additional day) plus $40/hour; transmission at daytime rate of $200/hour; reception at daytime rate of $40/hour/site; from the Western Union earth station to conference site via public television open air transmission at $300/hour/site; audio talkback at an average of $22.02/hour/site.

Interactive Assumptions

27. Local facilitators were paid $100/day of presentation. The facilitator (and/or faculty) answers students' questions, coordinates site logistics, grades student material and checks the students' demonstration of the competency taught. In individual instruction formats (correspondence courses and audio cassettes), ADA would need to pay a graduate student about $50/day (responding to 120 students would take approximately five days) to grade tests, answer questions, and correspond with students. ADA would also need to pay a local clinical Registered Dietitian about $10/hour to review the students' performance of skill competency in these cases.

28. Workshop faculty were paid $250 per live presentation day. Two paid faculty were essential to this workshop.

ASSUMPTIONS (4)

Sources	Data Used
The American Dietetic Association (Chicago)	Accounts review Membership data base STARDATE '77 and '78 Travel policy
American Hospital Association (Chicago)	A/V production
Center for Educational Development, University of Illinois at the Medical Center (Chicago)	A/V production
Thomas Cook Travel Agency (Chicago)	Travel
Nelson/Harvey (Chicago)	A/V production
Public Service Satellite Consortium (San Diego)	Compilation of Western Union and AT&T services
ROSCOR (Chicago)	A/V equipment rental

STARDATE 1977-78 PROJECT DESCRIPTION

Communications Satellite and Sites Chosen

The STARDATE experiment has used and is currently using the Communications Technology Satellite (CTS) throughout its duration. CTS is a joint venture of the United States and Canadian governments; it was launched in December, 1975 by NASA.

The Lister Hill National Center for Biomedical Communications (NLM/PHS/DHEW) designed and installed six full duplex earth stations, each independently capable of transmitting and receiving one video and four audio channels simultaneously. The locations selected for the earth terminals were: Bethesda, Maryland; Lexington, Kentucky; Denver, Colorado; Bozeman, Montana; Seattle, Washington; and Fairbanks, Alaska. In an attempt to focus on the most populous regions covered by these earth stations the following sites were chosen for use in the ADA experiments: Bethesda, Denver, and Seattle. In this initial pilot experiment, it was felt that there would be greater opportunity to select a specific sample population from sites in more densely populated regions.

Faculty

In order to increase the probability of success in the recruitment of students for this project, the faculty contracted for each of the workshops were prominent nutritionists which many members would recognize as authorities in their field. To help recruit students, coordinate local operations, and extend the broadcasted instruction, facilitators were chosen for each site and each course. These were members who were active in their state or district dietetic association's affairs.

Courses

The STARDATE '77 experiment consisted of the development and conduct of two continuing education workshops: "Financial Management for Nutritional Care", and "Patient Nutritional Assessment." These two courses required a total of approximately 13 hours of real time broadcast on CTS. The "Financial Management" workshop took a total of three continuous days to complete, while the "Patient Nutritional Assessment" program was held on four separate dates; this affected the participants' travel costs significantly.

For the first transmission of STARDATE '78, the "Patient Nutritional Assessment" workshop was significantly improved by curriculum and media specialists at the Center for Educational Development, University of Illinois at the Medical Center (subcontractor to ADA for its NIE project). Although more time was allocated for question-and-answer periods (the interactive portion), the total broadcast time was reduced to 3½ hours; approximately two hours of pre- and post-broadcast instruction and testing were conducted on the same day. It was felt that this format served to maximize the primary asset of the satellite: its interactive capability.

Six additional workshops are in the planning stages for STARDATE '78.

STARDATE Project Objectives

The general overall goal of ADA's STARDATE experiments is to explore more effective and efficient channels to provide continuing education to dietetic practitioners. The short-term objectives that are part of this pilot experimental effort are as follows:

- Gain first-hand experience in the design and implementation of an interactive televised educational program.
- Acquire a basic understanding of the operational constraints on the educator using the current communications satellite system.
- Collect data regarding the learner audience's affective reaction, retention and understanding of didactic material, perception of the technical quality of the broadcasts, and the cost of their participation.
- Analyze the above data in order to make recommendations to the ADA Board of Directors regarding the possible value of this delivery system to continuing education services for the membership.
- If warranted by initial efforts, secure additional financial resources and institutional cooperation in order to continue this investigation of communications satellite delivery of continuing education.

STARDATE Evaluation Measures

- Economic Data. At the end of each workshop, each participant completed an instrument which recorded his/her cost of workshop participation. This included transportation, living expenses, and other expenses incurred as a participant in the project. Also included were questions regarding the cost to the employer for students' participation; this section included questions regarding possible replacements while participants were absent from their work place and their general estimate of the cost to the employer while they were absent.
- Technical systems. Because the STARDATE project involved the use of some rather sophisticated technical systems that were required to perform at a high level in order to effectively support the communications needs of the project, it was of interest to collect data regarding the participant's perception of the technical performance. Included in this instrument were questions regarding the quality of the color and sound, possible interference of technical personnel (e.g., noisy camera operators), and the general arrangement of the physical learning environment.

- Cognitive learning. The STARDATE experiment presented the participants with a significant amount of didactic presentation. Therefore, one of the interests of ADA was, "Did the learner actually retain and understand the material provided through these workshops?" This portion of the evaluation was contracted to the individual workshop faculty. The processing of this data was accomplished by the faculty contractor, who reported the summative evaluation of the cognitive measures to ADA staff.

- Attitudinal change. One of the basic concerns of ADA regarding this entire experiment was, "Would the average ADA member react favorably to learning via communications satellite?" Another was, "What is the average ADA member's opinion of ADA's present and possible future involvement in this type of venture?" To this end, instruments were designed to collect data on the participants' attitudes both before and after they had experienced the workshop. Demographic questions were also included on the pre-workshop questionnaire to serve as standard independent variables for later analysis.

Research Questions

Out of this pilot effort there are a few research questions that seem appropriate to address in the next stage of STARDATE's development. They are:

- What is involved in the creation of a local network which can be accessed with relative ease by the member desiring participation?

- In what learning situations can one get comparable audiences to rank a mediated learning program close to the same program delivered in person?

- What are the costs of a project similar to STARDATE but on a large enough scale so that pricing projections can be made?

- What types of dietetic practitioner audiences are appropriate for mediated continuing education delivered by communications satellite?

APPENDIX VIII

SIMULATION IN THE ASSESSMENT OF INTERPERSONAL SKILLS

INTERPERSONAL SKILLS

The physician's interpersonal skills and attitudes can be assessed by simulated interviews and conferences in which an individual--not necessarily an actor--is programmed to take the part of a patient, a colleague or other member of the health team. These simulations differ from the live simulations of clinical problems only in their focus: in the former, the emphasis is on solving a complex medical problem; in the latter, the situations are chosen to focus on the physician's communication skills, his sensitivity to patient and colleague needs and his attitudes toward these important people.

For example, in what purports to be a straight-forward diagnostic interview, the simulated patient may, if appropriately handled by the physician, provide cues that the real problem is a deep-seated personal, familial or emotional one. The physician's sensitivity and response to these cues and his skill in handling such a patient, in communicating with him and in gaining his understanding and cooperation in a proposed plan of management are readily assayed in such simulated interviews.

Analogous simulated interviews with colleagues have been developed to deal with referral and consultation requests and even with those ticklish situations in which colleagues differ sharply about the management of a particular patient. Clearly, in such settings the physician's skill and his professional attitudes are soon apparent.

Finally, the simulated interview may be designed to require the physician to communicate with one or more members of the health team. For example, he may be required to give instructions to a simulated nurse, or to request assistance for his patient from a simulated dietitian or social worker, or to make a presentation and respond to the reactions of individuals who have been programmed to take the role of other members of the health team in a simulated staff conference. Again, the candidate can be rated on his communication skills, his interpersonal skills, his attitudes and his professional demeanor in that kind of situation.

SAMPLE PROBLEM

Simulated "Proposed Treatment" Interview

The patient, Jeanette Bond, is a 15-year-old girl who was brought in by her mother, Angela Bond, who is a secretary. You have obtained the history that 5 weeks prior to admission the patient bumped her left knee during gym class. After this she continued to have some discomfort just distal to the knee but it didn't bother her much until about 2 weeks ago at which time the pain increased and she began limping. In the past week the pain has become so severe that it now keeps her awake at night. In the past few days there has been a swelling of the left knee region.

Your examination revealed a 2 x 3 cm. mass over the medial proximal tibia, marked tenderness over the proximal tibial metaphysis, a 15° flexion contracture of the knee, and increased skin temperature over this area. Your examination of the patient was otherwise negative.

The X-rays which you ordered are attached. They show a lesion of the tibial metaphysis with destruction of bone and some areas of new bone production. The articular surface of the knee joint doesn't seem to be involved. The chest X-ray is negative.

You think this is malignancy and do an open biopsy. The histologic sections show an anaplastic osteosarcoma.

You now decide that an AK amputation is required. You are also considering pre-op irradiation.

The patient and her mother are waiting in the outer office. You are to explain your diagnosis and proposed treatment to them.

SAMPLE CHECKLIST FOR EVALUATING PATIENT INTERVIEWS

Case # _____ Date _____

Name of Examinee _____ Rater _____

Directions: Place a tally (|) in the appropriate box each time each of the following behaviors is observed to occur during the interview. Record only the candidate's behavior. DO NOT record the patient's responses.

Tally	Effective Behaviors
	Puts patient at ease e.g., asks open-ended questions to encourage patient to express himself fully; tells patient to take his time explaining his symptoms.
	Reassures, commends, shows understanding of patient's circumstances e.g., . . . that must have been very painful; I understand why this is difficult for you.
	Asks simple questions in layman's terms to elicit needed information.
	Makes sure patient understands findings and prognosis e.g., explains in layman's terms; explains prognosis clearly and accurately.
	Gives clear instructions regarding treatment and/or makes sure patient understands; prepares patient for possible side effects
	Retains composure in spite of provocation by patient
	Maintains control without rigid direction of interview
	Recognizes the limitations of his own professional competence and refers patient when indicated

Tally	Ineffective Behaviors
	Seems unable to establish rapport e.g., cuts patient short; hurries interview; probes indelicately; asks embarrassing questions.
	Shows lack of empathy or contempt for patient e.g., you wouldn't understand; it is too complex to explain to you.
	Ask complex and confusing questions using medical jargon.
	Uses medical jargon to explain findings and prognosis and/or is unduly evasive in discussing findings and prognosis.
	Gives confusing instructions regarding treatment and/or fails to ascertain patient understanding; does not prepare patient for possible complications
	Loses his composure and becomes involved in behavior extraneous and detrimental to the patient's well-being
	Loses control and/or is overly rigid in directing interview
	Fails to recognize his limitations and fails to refer patient when

ORAL EXAMINATION

RATING FORM FOR USE WITH "PATIENT" INTERVIEWS

Candidate's Examination Number: _____
(Cols. 1 - 3)

Examiner's Name: _____
(Cols. 4 - 5)

Date: _____
(Cols. 6 - 7)

Starting Time: _____
(Cols. 8 - 11)

Col. No.

12 - 13

RATING OF DIAGNOSTIC INTERVIEW

Diagnostic Case No. _____

Factor I: Ability to elicit an adequate amount of pertinent information

Weight 4

(The candidate should ask most of the indicated questions; other questions should be appropriate to the diagnosis.)

14 - 15

01 02 03	04 05 06	07 08 09	10 11 12
☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Poor	Adequate	Good	Excellent

Factor II: Ability to communicate with the patient

Weight 1

(Did he use appropriate vocabulary, use concepts familiar to the patient, and allow the patient to narrate parts of the history?)

16 - 17

01 02 03	04 05 06	07 08 09	10 11 12
☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Poor	Adequate	Good	Excellent

Factor III: Efficiency in gathering data

Weight 1

(Did he ask relevant and necessary questions, and avoid the time waste of exploring remote diagnoses which prevent an adequate examination of the pertinent facts?)

18 - 19

01 02 03	04 05 06	07 08 09	10 11 12
☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Poor	Adequate	Good	Excellent

RATING OF DIAGNOSTIC INTERVIEW (Continued)

Col. No.

Factor IV:
Ability to arrive at a diagnosis and present logical reasons for it
Weight 4

(Did he fail to consider all the pertinent facts he uncovered, make errors in relating or interpreting facts, or make errors in weighing the facts at hand?)

20 - 21

01	02	03	04	05	06	07	08	09	10	11	12
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Poor			Adequate			Good			Excellent		

Factor V: Overall evaluation of Diagnostic Interview

22 - 23

01	02	03	04	05	06	07	08	09	10	11	12
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Poor			Adequate			Good			Excellent		

24 Your role: ☐ "patient" (1) ☐ rater only (2)

25 Comments:

The Candidate was difficult to evaluate because:

26 ☐ He spoke slowly

27 ☐ He spoke rapidly

28 ☐ He did not speak English well

29 ☐ He seemed excessively nervous

30 ☐ He seemed confused about the procedure

31 ☐ Other _____

32 I did not find the Candidate difficult to evaluate ☐

Col. No.

RATING OF PROPOSED TREATMENT INTERVIEW

33 - 34 Proposed Treatment Case No._____

Factor I: Effectiveness of the candidate's statements

Weight 6

(Did he give too little information, oversimplify, indicate undue pessimism or optimism, overwhelm the patient with excessive detail or use inappropriate vocabulary?)

35 - 36

01	02	03	04	05	06	07	08	09	10	11	12
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Poor			Adequate			Good			Excellent		

Factor II: Effectiveness of the candidate's manner

Weight 2

(Was the manner in which the physician dealt with the "patient" one which would genuinely convince the patient that the physician is interested in his welfare?)

37 - 38

01	02	03	04	05	06	07	08	09	10	11	12
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Poor			Adequate			Good			Excellent		

Factor III: Efficiency of the interview in terms of the interaction between patient and physician

(Did the physician present the required information to the patient in a clear-cut efficient fashion?)

39 - 40

01	02	03	04	05	06	07	08	09	10	11	12
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Poor			Adequate			Good			Excellent		

Factor IV: Overall evaluation of the Proposed Treatment Interview

41 - 42

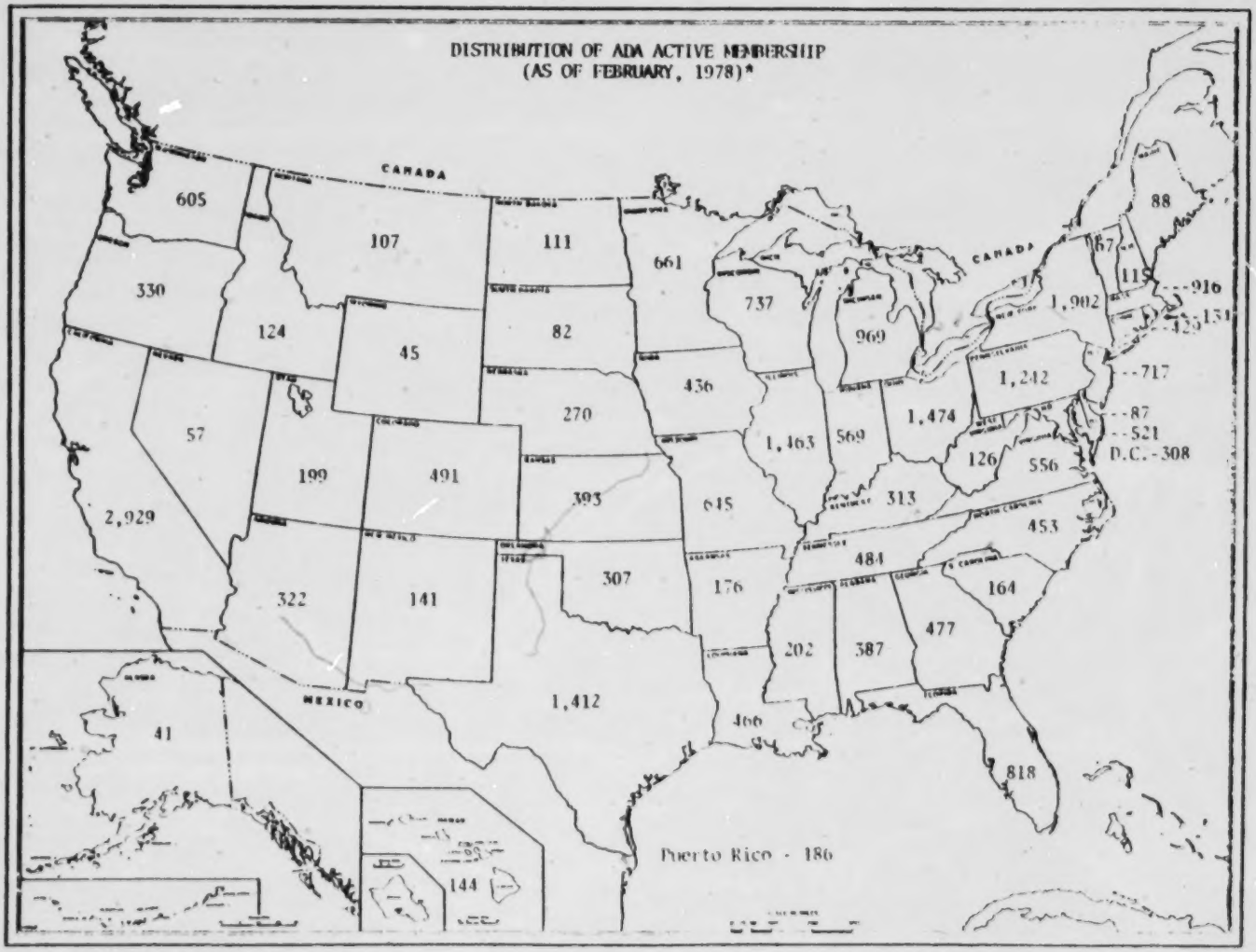
01	02	03	04	05	06	07	08	09	10	11	12
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Poor			Adequate			Good			Excellent		

---

43 Your role: ☐ 1 "patient" ☐ 2 rater only

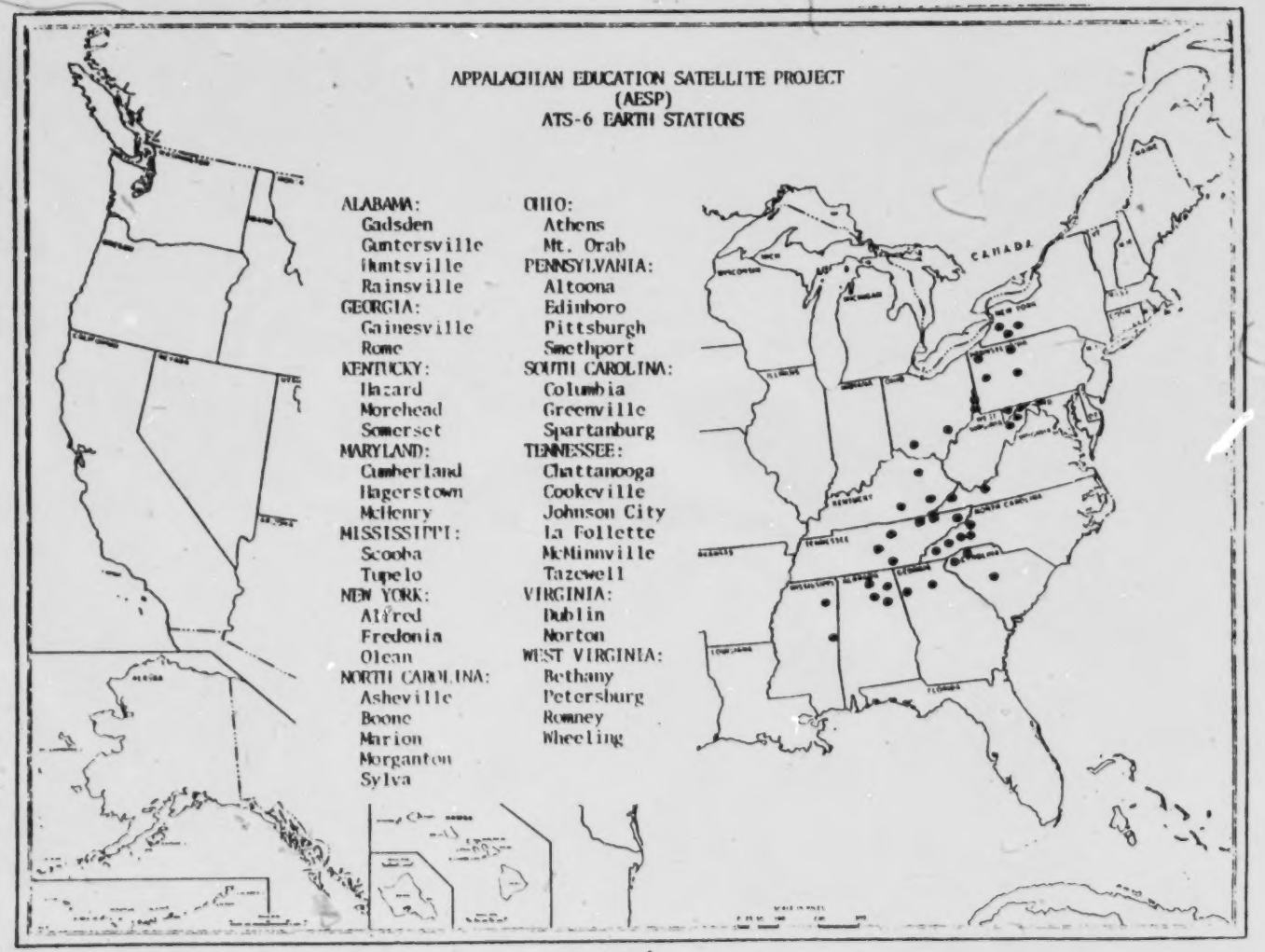
---

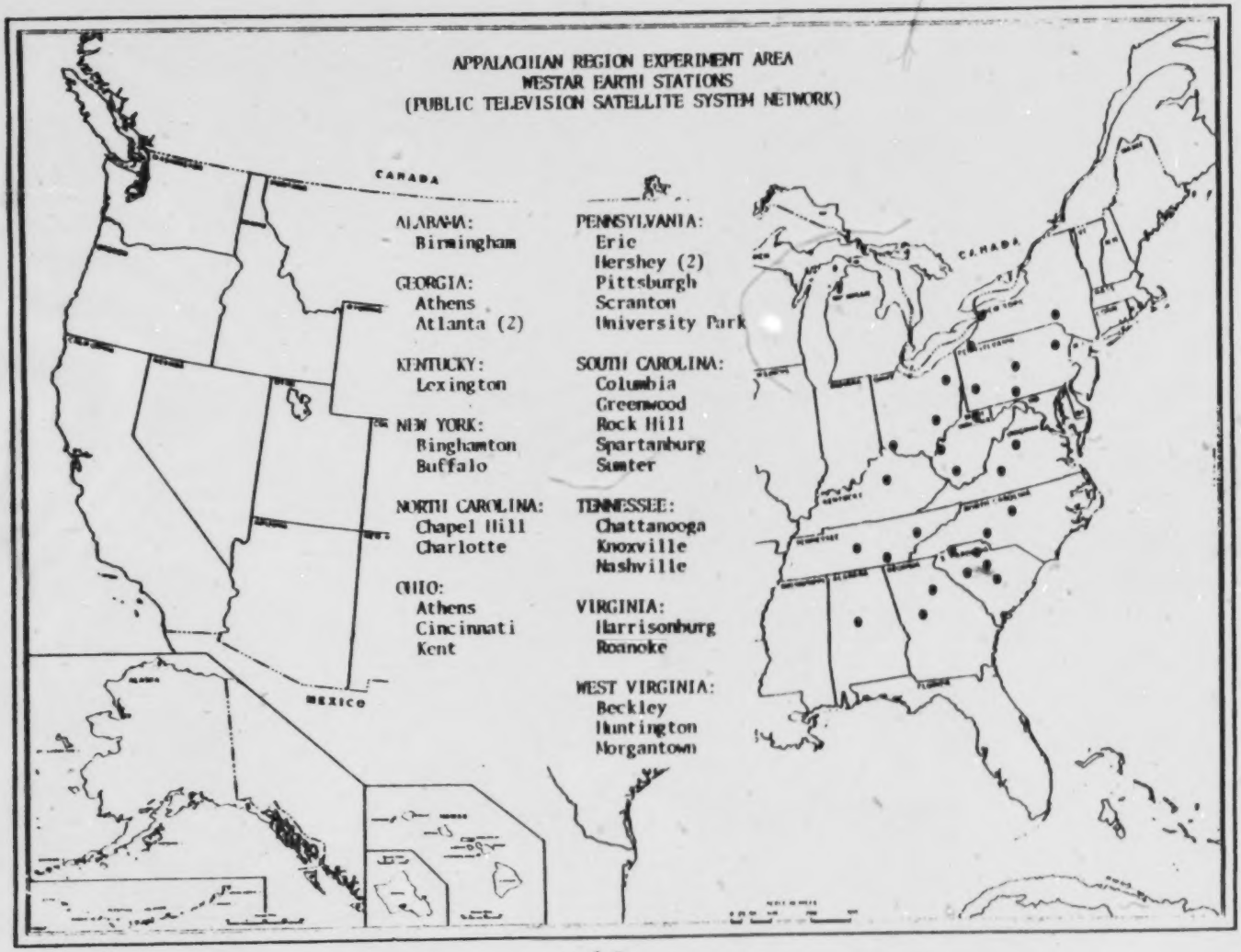
44 Comments:



*26,398 of the 29,178 active dietitians reported their state on the membership questionnaire.

APPENDIX IX


APPALACHIAN EDUCATION SATELLITE PROJECT
(AESP)
ATS-6 EARTH STATIONS
ALABAMA:
Gadsden
Guntersville
Huntsville
Rainsville
GEORGIA:
Gainesville
Rome
KENTUCKY:
Hazard
Morehead
Somerset
MARYLAND:
Cumberland
Hagerstown
McHenry
MISSISSIPPI:
Scooba
Tupelo
NEW YORK:
Alfred
Fredonia
Olean
NORTH CAROLINA:
Asheville
Boone
Marion
Morganton
Sylva
OHIO:
Athens
Mt. Orab
PENNSYLVANIA:
Altoona
Edinboro
Pittsburgh
Smethport
SOUTH CAROLINA:
Columbia
Greenville
Spartanburg
TENNESSEE:
Chattanooga
Cookeville
Johnson City
La Follette
McMinnville
Tazewell
VIRGINIA:
Dublin
Norton
WEST VIRGINIA:
Bethany
Petersburg
Romney
Wheeling
CANADA


APPALACHIAN REGION EXPERIMENT AREA
WESTAR EARTH STATIONS
(PUBLIC TELEVISION SATELLITE SYSTEM NETWORK)
CANADA
MEXICO
ALABAMA:
Birmingham
GEORGIA:
Athens
Atlanta (2)
KENTUCKY:
Lexington
NEW YORK:
Binghamton
Buffalo
NORTH CAROLINA:
Chapel Hill
Charlotte
OHIO:
Athens
Cincinnati
Kent
PENNSYLVANIA:
Erie
Hershey (2)
Pittsburgh
Scranton
University Park
SOUTH CAROLINA:
Columbia
Greenwood
Rock Hill
Spartanburg
Sumter
TENNESSEE:
Chattanooga
Knoxville
Nashville
VIRGINIA:
Harrisonburg
Roanoke
WEST VIRGINIA:
Beckley
Huntington
Morgantown

TOTAL ADA POPULATION WITHIN 20 MILES
OF AESP ATS-6 EARTH STATIONS

Gadsden, Alabama 35903	
From Gadsden alone (359)	20
From within a 20-mile radius of earth station:	
Alabama: 350-352, 362	159
Total	179
Guntersville, Alabama 35976	
From Guntersville-Gadsden alone (359)	20
From within a 20-mile radius of earth station:	
Alabama: 350-352, 357-358	184
Total	204
Huntsville, Alabama 35801	
From Huntsville alone (357-358)	33
From within a 20-mile radius of earth station:	
Alabama: 356	20
Total	53
Rainsville, Alabama 35986	
From Rainsville-Gadsden alone (359)	20
From within a 20-mile radius of earth station:	
Alabama: 357-358	33
Total	53
Subtotal Alabama potential audience without overlaps:	
350-352, 356, 357-358, 359, 362	224
Gainesville, Georgia 30501	
From Gainesville alone (305)	11
From within a 20-mile radius of earth station:	
Georgia: 301, 302	48
Total	59
Rome, Georgia 30161	
From Rome (Atlanta) alone (301)	22
From within a 20-mile radius of earth station:	
Georgia: 307	8
Alabama: 359, 362	28
Total	58
Subtotal Georgia potential audience without overlaps:	
301, 302, 305, 307	67
Hazard, Kentucky 41701	
From Hazard alone (417)	5
From within a 20-mile radius of earth station:	
Kentucky: 408, 409, 413, 416, 418	3
Total	8
Morehead, Kentucky 40351	
From Morehead (Lexington) alone (403)	25
From within a 20-mile radius of earth station:	
Kentucky: 410, 411, 414	35
Total	60

AESP EARTH STATIONS (2)

Somerset, Kentucky 42501	
From Somerset alone (425)	2
From within a 20-mile radius of earth station:	
Kentucky: 404, 407, 426	19
Total	21
Subtotal Kentucky potential audience without overlaps: 403, 404, 407, 408, 409, 410, 411, 413, 414, 416, 417, 418, 425, 426	89
Cumberland, Maryland 21502	
From Cumberland alone (215)	6
From within a 20-mile radius of earth station:	
Maryland: 217	30
Pennsylvania: 155, 172	18
Total	54
Hagerstown, Maryland 21740	
From Hagerstown-Frederick alone (217)	30
From within a 20-mile radius of earth station:	
Pennsylvania: 172, 173-174	39
Total	69
McHenry, Maryland 21541	
From McHenry-Cumberland alone (215)	6
From within a 20-mile radius of earth station:	
West Virginia: 267	3
Total	9
Subtotal Maryland potential audience without overlaps: 155, 172, 173-174, 215, 217	84
Scooba, Mississippi 39358	
From Scooba-Meridian alone (393)	8
From within a 20-mile radius of earth station:	
Alabama: 354	50
Total	58
Tupelo, Mississippi 38801	
From Tupelo alone (388)	16
From within a 20-mile radius of earth station:	
Mississippi: 386	19
Total	35
Subtotal Mississippi potential audience without overlaps: 354, 386, 388, 393	93
Alfred, New York 14802	
From Alfred (Elmira) alone (148)	54
From within a 20-mile radius of earth station:	
New York: 144-146, 147	185
Pennsylvania: 169	3
Total	242

AESP EARTH STATIONS (3)

Fredonia, New York 14063	
From Fredonia (Buffalo) alone (140)	47
From within a 20-mile radius of earth station:	
New York: 141, 147	51
Total	98
Olean, New York 14760	
From Olean-Jamestown alone (147)	21
From within a 20-mile radius of earth station:	
New York: 148	54
Pennsylvania: 167	5
Total	80
Subtotal New York potential audience without overlaps:	
140, 141, 144-146, 147, 148	316
Asheville, North Carolina 28801	
From Asheville alone (288)	25
From within a 20-mile radius of earth station:	
North Carolina: 287	30
Total	55
Boone, North Carolina 28608	
From Boone-Hickory alone (286)	24
From within a 20-mile radius of earth station:	
Tennessee: 376	37
Total	61
Marion, North Carolina 28752	
From Marion (Asheville) alone (287)	30
From within a 20-mile radius of earth station:	
North Carolina: 280-281, 286	62
Total	92
Morganton, North Carolina 28655	
From Morganton-Hickory alone (286)	24
From within a 20-mile radius of earth station:	
North Carolina: 280-281, 287	68
	92
Sylva, North Carolina 28779	
From Sylva (Asheville) alone (287)	30
From within a 20-mile radius of earth station:	
Tennessee: 377-378	54
Total	84
Subtotal North Carolina potential audience without overlaps:	
280-281, 286, 287, 288	117

AESP EARTH STATIONS (4)

Athens, Ohio 45701	
From Athens alone (457)	18
From within a 20-mile radius of earth station:	
Ohio: 430-431, 437-438, 456	107
West Virginia: 250-252, 261	17
Total	142
Mt. Orab, Ohio 45154	
From Mt. Orab (Cincinnati) alone (451)	11
From within a 20-mile radius of earth station:	
Ohio: 450, 452, 456	350
Kentucky: 410	32
Total	393
Subtotal Ohio potential audience without overlaps: 250-252, 430-431, 437-438, 450-452, 456	453
Altoona, Pennsylvania 166xx	
From Altoona alone (166)	21
From within a 20-mile radius of earth station:	
Pennsylvania: 157, 159, 168, 170-171	173
Total	194
Edinboro, Pennsylvania 16412	
From Edinboro (Erie) alone (164)	11
From within a 20-mile radius of earth station:	
Pennsylvania: 163, 165	43
Ohio: 440	100
Total	154
Pittsburgh, Pennsylvania 152xx	
From Pittsburgh alone (150-152)	326
From within a 20-mile radius of earth station:	
Pennsylvania: 153, 154, 156, 160	96
Total	422
Smethport, Pennsylvania 16749	
From Smethport-Bradford alone (167)	5
From within a 20-mile radius of earth station:	
Pennsylvania: 158, 169	8
New York: 147	21
Total	34
Subtotal Pennsylvania potential audience without overlaps: 150-152, 153, 154, 156, 157, 158, 159, 160, 163, 164, 165, 166, 167, 168, 169, 170-171, 440	783
Columbia, South Carolina 29205	
From Columbia alone (290-292)	72
From within a 20-mile radius of earth station:	
South Carolina: (no other Zips within 20 miles)	0
Total	72

AESP EARTH STATIONS (5)

Greenville, South Carolina 29606	
From Greenville alone (296)	32
From within a 20-mile radius of earth station:	
South Carolina: 293	14
North Carolina: 287	30
Total	76
Spartanburg, South Carolina 29303	
From Spartanburg alone (293)	14
From within a 20-mile radius of earth station:	
South Carolina: 296	32
North Carolina: 287	30
Total	76
Subtotal South Carolina potential audience without overlaps: 290-292, 293, 296	118
Chattanooga, Tennessee 37401	
From Chattanooga alone (373-374)	55
From within a 20-mile radius of earth station:	
Georgia: 307	8
Alabama: 357	2
Total	65
Cookeville, Tennessee 38501	
From Cookeville alone (385)	13
From within a 20-mile radius of earth station:	
Tennessee: 370-371	64
Total	77
Johnson City, Tennessee 37601	
From Johnson City alone (376)	37
From within a 20-mile radius of earth station:	
Tennessee: 377-378	54
Virginia: 242	13
North Carolina: 287	30
Total	134
La Follette, Tennessee 37766	
From La Follette (Knoxville) alone (377)	16
From within a 20-mile radius of earth station:	
Tennessee: 378, 379	137
Kentucky: 407	0
Total	153
McMinnville, Tennessee 37110	
From McMinnville (Nashville) alone (371)	31
From within a 20-mile radius of earth station:	
Tennessee: 370, 373, 385	74
Total	105

AESP EARTH STATIONS (6)

Tazewell, Tennessee 37879	
From Tazewell (Knoxville) alone (378)	38
From within a 20-mile radius of earth station:	
Tennessee: 377	16
Kentucky: 408, 409	2
Virginia: 242	13
Total	69
Subtotal Tennessee potential audience without overlaps:	
370, 371, 373, 374, 376, 377, 378, 379, 385	322
Dublin, Virginia 24084	
From Dublin (Roanoke) alone (240)	49
From within a 20-mile radius of earth station:	
Virginia: 241, 243	17
West Virginia: 247, 249	6
Total	72
Norton, Virginia 24273	
From Norton-Bristol alone (242)	13
From within a 20-mile radius of earth station:	
Kentucky: 408, 415, 418	2
Total	15
Stickleyville, Virginia	
From Stickleyville	
From within a 20-mile radius of earth station:	
(not in Rand McNally Atlas or Zip Code Directory)	--
Subtotal Virginia potential audience without overlaps:	
240, 241, 242, 243, 247, 249, 415	87
Bethany, West Virginia 26032	
From Bethany-Wheeling alone (260)	18
From within a 20-mile radius of earth station:	
Pennsylvania: 150, 151, 153	129
Ohio: 439	19
Total	166
Petersburg, West Virginia 26847	
From Petersburg alone (268)	1
From within a 20-mile radius of earth station:	
West Virginia: 262, 267	6
Virginia: 228	16
Total	23
Romney, West Virginia 26757	
From Romney-Cumberland alone (267)	3
From within a 20-mile radius of earth station:	
West Virginia: 254, 268	10
Maryland: 215	6
Total	19

AESP EARTH STATIONS (7)

Wheeling, West Virginia 26003	
From Wheeling alone (260)	18
From within a 20-mile radius of earth station:	
Pennsylvania: 150, 151, 153	129
Ohio: 439	19
Total	166
Subtotal West Virginia potential audience without overlaps:	
228, 254, 260, 262, 267, 268, 439	69
GRAND TOTAL (no overlap) - 44 sites	2,822

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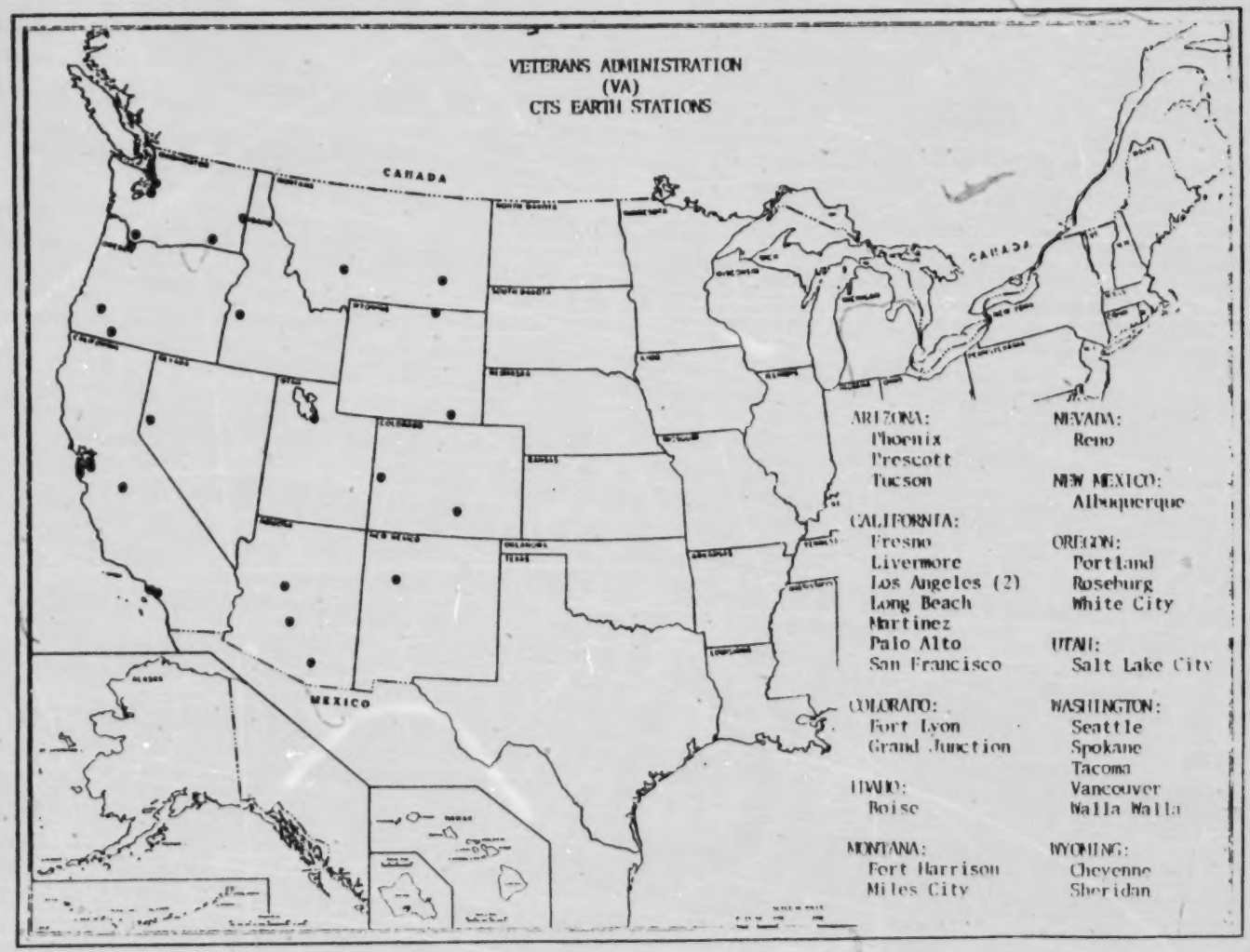
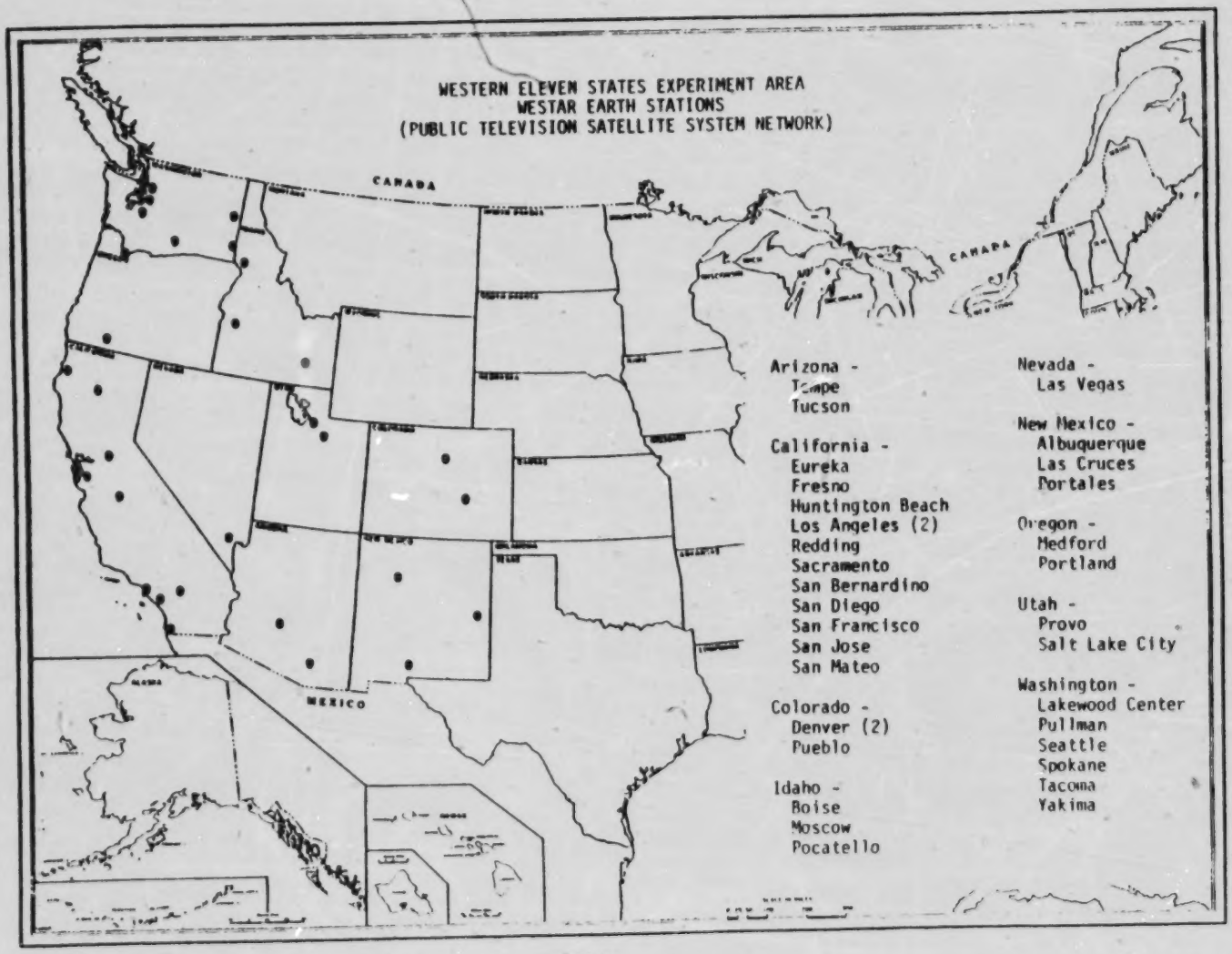
2/21/78


VETERANS ADMINISTRATION
(VA)
CTS EARTH STATIONS
CANADA
CANADA
MEXICO
ARIZONA:
Phoenix
Prescott
Tucson
CALIFORNIA:
Fresno
Livermore
Los Angeles (2)
Long Beach
Martinez
Palo Alto
San Francisco
COLORADO:
Fort Lyon
Grand Junction
IDAHO:
Boise
MONTANA:
Fort Harrison
Miles City
NEVADA:
Reno
NEW MEXICO:
Albuquerque
OREGON:
Portland
Roseburg
White City
UTAH:
Salt Lake City
WASHINGTON:
Seattle
Spokane
Tacoma
Vancouver
Walla Walla
WYOMING:
Cheyenne
Sheridan


WESTERN ELEVEN STATES EXPERIMENT AREA
WESTAR EARTH STATIONS
(PUBLIC TELEVISION SATELLITE SYSTEM NETWORK)
CANADA
CANADA
MEXICO
Arizona -
Tempe
Tucson
California -
Eureka
Fresno
Huntington Beach
Los Angeles (2)
Redding
Sacramento
San Bernardino
San Diego
San Francisco
San Jose
San Mateo
Colorado -
Denver (2)
Pueblo
Idaho -
Boise
Moscow
Pocatello
Nevada -
Las Vegas
New Mexico -
Albuquerque
Las Cruces
Portales
Oregon -
Medford
Portland
Utah -
Provo
Salt Lake City
Washington -
Lakewood Center
Pullman
Seattle
Spokane
Tacoma
Yakima

TOTAL ADA POPULATION WITHIN 75 MILES OF VA CTS EARTH STATIONS

Albuquerque, New Mexico	
From Albuquerque alone (870-871)	103
From accessible, adjacent Zip code areas:	
New Mexico: 873-875, 878, 883-884	36
Total	139
American Lake (Tacoma), Washington	
From Tacoma alone (983-984)	79
From accessible, adjacent Zip code areas:	
Washington: 980-981, 982*, 985-986, 989	497
Total	576
Boise, Idaho	
From Boise alone (836-837)	62
From accessible, adjacent Zip code areas:	
Idaho: 832-833, 834-835	48
Oregon: 979	2
Nevada: 898	1
Total	113
Cheyenne, Wyoming	
From Cheyenne alone (820)	22
From accessible, adjacent Zip code areas:	
Wyoming: 822-823, 826	12
Colorado: 805-807	94
Nebraska: 691, 693	19
Total	147
Fort Harrison, Montana	
From Fort Harrison-Helena alone (596)	19
From accessible, adjacent Zip code areas:	
Montana: 590-591, 594, 597-599	98
Total	117
Fort Lyon, Colorado	
From Fort Lyon-Pueblo alone (810)	47
From accessible, adjacent Zip code areas:	
Colorado: 808-809, 811, 812	58
Kansas: 678	15
Oklahoma: 738	2
New Mexico: 877, 884	4
Total	126
Fresno, California	
From Fresno alone (936-937)	74
From accessible, adjacent Zip code areas:	
California: 932-934, 939, 950-951, 953	342
Total	416

*Not an adjacent Zip code but within 75 miles of earth station.

VA EARTH STATIONS (2)

Grand Junction, Colorado	
From Grand Junction alone (815)	17
From accessible, adjacent Zip code areas:	
Colorado: 813-814, 816	17
Utah: 845	5
Total	39
Livermore, California	
From Livermore-Oakland alone (945-948)	475
From accessible, adjacent Zip code areas:	
California: 940-944, 949-954, 956-958	939
Total	1,414
Long Beach, California	
From Long Beach-Los Angeles alone (900-918)	1,166
From accessible, adjacent Zip code areas:	
California: 923-928, 930-931, 935	495
Total	1,661
Los Angeles (Brentwood), California	
Same as above	
Los Angeles (Wadsworth), California	
Same as above	
Martinez, California	
Same as Livermore	
Miles City, Montana	
From Miles City alone (593)	7
From accessible, adjacent Zip code areas:	
Montana: 590-592	39
North Dakota: 586	1
South Dakota: 577	24
Wyoming: 827-828	9
Total	80
Palo Alto, California	
From Palo Alto-San Francisco alone (940-944)	415
From accessible, adjacent Zip code areas:	
California: 945-948, 949-951, 952-954*, 956-958*	999
Total	1,414
Phoenix, Arizona	
From Phoenix alone (850-853)	230
From accessible, adjacent Zip code areas:	
Arizona: 855-857, 863-864	158
(California is also adjacent to this Zip code area but more than 125 miles from earth station)	
Total	388

*Not an adjacent Zip code but within 75 miles of earth station.

VA EARTH STATIONS (3)

Portland, Oregon	
From Portland alone (970-972)	228
From accessible, adjacent Zip code areas:	
Oregon: 973, 977-978	89
Washington: 986	23
Total	340
Prescott, Arizona	
From Prescott alone (863)	13
From accessible, adjacent Zip code areas:	
Arizona: 850-853, 855, 860, 864	251
Total	264
Reno, Nevada	
From Reno alone (894-897)	36
From accessible, adjacent Zip code areas:	
Nevada: 890-891, 893, 898	35
California: 957, 961	7
(Oregon is also adjacent to this Zip code area but more than 150 miles from earth station)	
Total	78
Roseburg, Oregon	
From Roseburg-Eugene alone (974)	60
From accessible, adjacent Zip code areas:	
Oregon: 973, 975-977	101
California: 955	14
Total	175
Salt Lake City, Utah	
From Salt Lake City alone (840-841)	160
From accessible, adjacent Zip code areas:	
Utah: 843-847	68
Wyoming: 829-831	6
Colorado: 816	8
Idaho: 832	19
Nevada: 898	1
Total	262
San Francisco, California	
Same as Palo Alto	
Seattle, Washington	
From Seattle alone (980-981)	376
From accessible, adjacent Zip code areas:	
Washington: 982-984, 985*, 988-989	188
Total	564

*Not an adjacent Zip code but within 75 miles of earth station.

VA EARTH STATIONS (4)

Sheridan, Wyoming	
From Sheridan alone (828)	9
From accessible, adjacent Zip code areas:	
Wyoming: 824, 826-827	15
Montana: 590-591	33
Total	57
Spokane, Washington	
From Spokane alone (990-992)	87
From accessible, adjacent Zip code areas:	
Washington: 988, 993-994	42
Idaho: 838	31
Total	160
Tucson, Arizona	
From Tucson alone (856-857)	135
From accessible, adjacent Zip code areas:	
Arizona: 850-853, 855	236
New Mexico: 880	14
Total	385
Vancouver, Washington	
From Vancouver-Portland alone (986)	23
From accessible, adjacent Zip code areas:	
Washington: 983-985, 989, 993	170
Oregon: 970-972	228
Total	421
Walla Walla, Washington	
From Walla Walla-Pasco alone (993)	30
From accessible, adjacent Zip code areas:	
Washington: 986, 988-989, 990-992, 994	150
Oregon: 978	13
Idaho*: 835	5
Total	198
White City, Oregon	
From White City-Medford alone (975)	20
From accessible, adjacent Zip code areas:	
Oregon: 974, 976	65
California: 955, 960	26
Total	111
GRAND TOTAL (areas overlap in some cases) - 29 sites	9,645

*Not an adjacent Zip code but within 75 miles of earth station.

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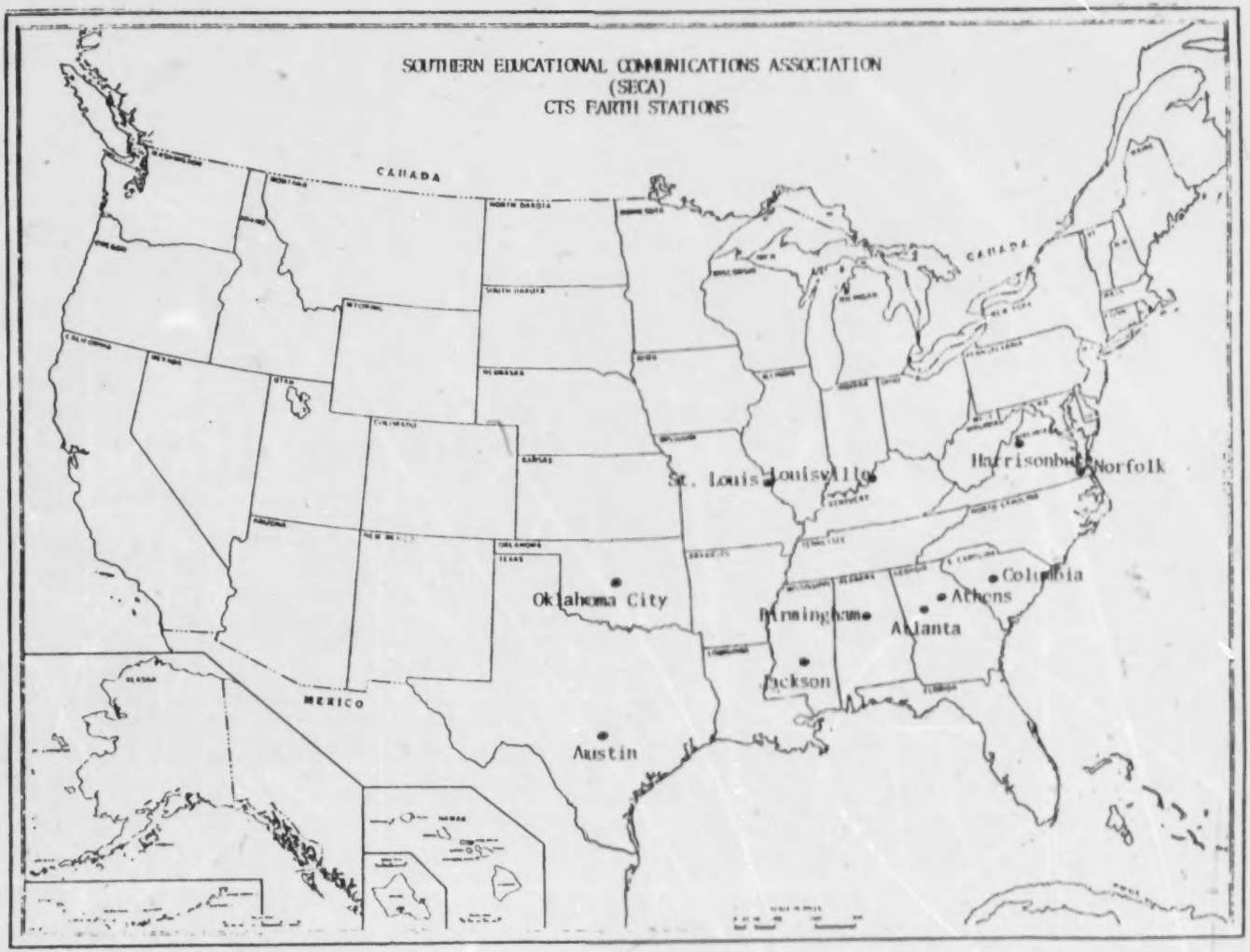
1/25/78


SOUTHERN EDUCATIONAL COMMUNICATIONS ASSOCIATION
(SECA)
CTS EARTH STATIONS
CANADA
CANADA
MEXICO
St. Louis
Louisville
Harrisonburg
Norfolk
Oklahoma City
Columbia
Athens
Birmingham
Atlanta
Jackson
Austin

SOUTHERN EDUCATIONAL COMMUNICATIONS ASSOCIATION
(SECA)
WESTAR EARTH STATIONS
(PUBLIC TELEVISION SATELLITE SYSTEM NETWORK)

Alabama -
Birmingham

Arkansas -
Conway

Florida -
Gainesville
Jacksonville
Miami (2)
Orlando
Pensacola
Tallahassee
Tampa (2)

Georgia -
Athens
Atlanta (2)

Kentucky -
Lexington
Louisville

Louisiana -
Baton Rouge
New Orleans

Mississippi -
Jackson

Missouri -
Kansas City
Sedalia
Springfield
St. Louis

North Carolina -
Chapel Hill
Charlotte

Oklahoma -
Oklahoma City

South Carolina -
Beaufort
Columbia
Conway
Greenwood
Rock Hill
Spartanburg
Sumter

Tennessee -
Chattanooga
Knoxville
Memphis
Nashville

Texas -
Austin
College Station
Corpus Christi
Dallas
El Paso
Houston
Killeen
Lubbock

Virginia -
Annandale
Harrisonburg
Norfolk
Richmond
Roanoke

West Virginia -
Beckley
Huntington
Morgantown

TOTAL ADA POPULATION WITHIN 50 MILES
OF SECA CTS EARTH STATIONS

Birmingham, Alabama 352xx	
From Birmingham alone (350-352)	151
From within 50 mile radius of earth station:	
Alabama: 354, 355, 359, 362, 367	84
Total	235
Athens, Georgia 30601	
From Athens alone (306)	31
From within 50 mile radius of earth station:	
Georgia: 300, 301, 302, 305, 308, 310	204
South Carolina: 296, 298	43
Total	278
Atlanta, Georgia 303xx	
From Atlanta alone (300-303)	332
From within 50 mile radius of earth station:	
Georgia: 305, 306, 310	71
Total	403
Subtotal Georgia potential audience without overlaps:	
296, 298, 300-303, 305, 306, 308, 310	449
Louisville, Kentucky 402xx	
From Louisville alone (400-402)	123
From within 50 mile radius of earth station:	
Kentucky: 403, 406, 410, 427	73
Indiana: 470, 471, 472, 474, 475	59
Total	255
Jackson, Mississippi 392xx	
From Jackson alone (390-392)	79
From within 50 mile radius of earth station:	
Mississippi: 394, 396	31
Louisiana: 712	39
Total	149
St. Louis, Missouri 631xx	
From St. Louis alone (630-631)	380
From within 50 mile radius of earth station:	
Missouri: 633, 636, 654-655	23
Illinois: 620, 622, 625, 626, 628	100
Total	503
Oklahoma City, Oklahoma 731xx	
From Oklahoma City alone (730-731)	171
From within 50 mile radius of earth station:	
Oklahoma: 737, 740, 748	77
Total	248

SECA EARTH STATIONS (2)

Columbia, South Carolina 292xx	
From Columbia alone (290-292)	72
From within 50 mile radius of earth station:	
South Carolina: 293, 297, 298	40
Total	112
Austin, Texas 787xx	
From Austin alone (786-787)	118
From within 50 mile radius of earth station:	
Texas: 765, 778, 780, 781, 789	87
Total	205
Harrisonburg, Virginia 22801	
From Harrisonburg alone (228)	16
From within 50 mile radius of earth station:	
Virginia: 226, 227, 229, 244	50
West Virginia: 268	1
Total	67
Norfolk, Virginia 235xx	
From Norfolk alone (233-237)	123
From within 50 mile radius of earth station:	
Virginia: 230, 231, 238	37
North Carolina: 279	5
Total	165
GRAND TOTAL (no overlap) - 11 sites	2,388

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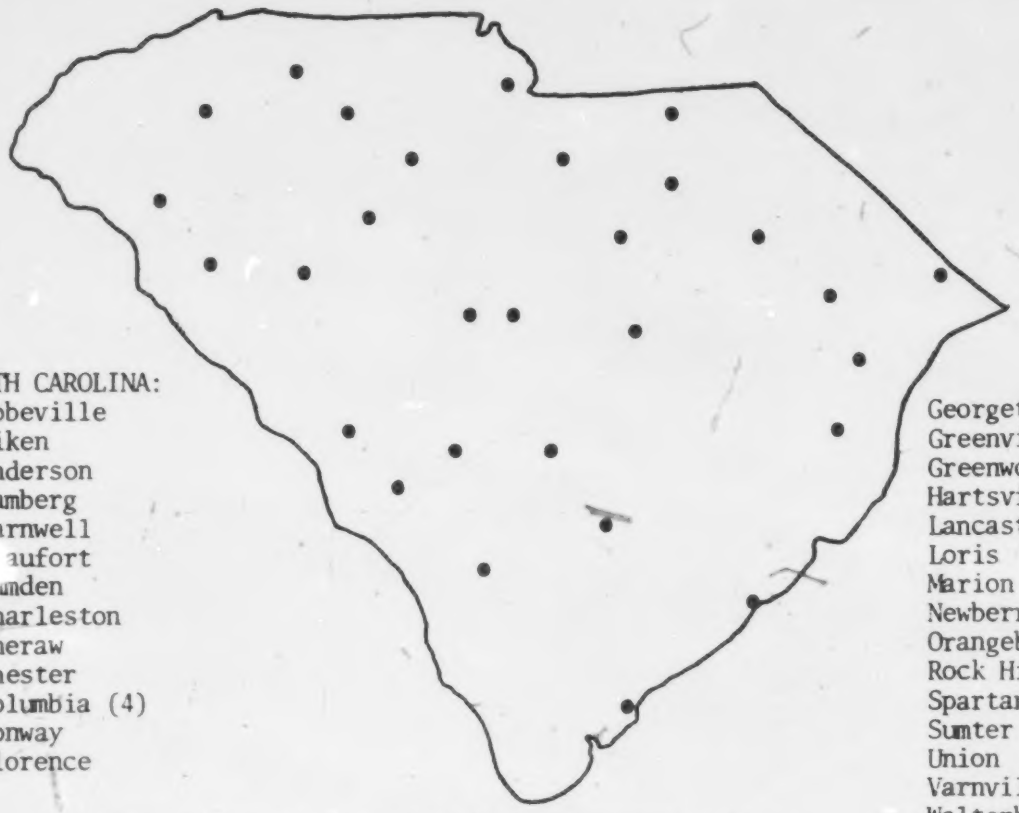
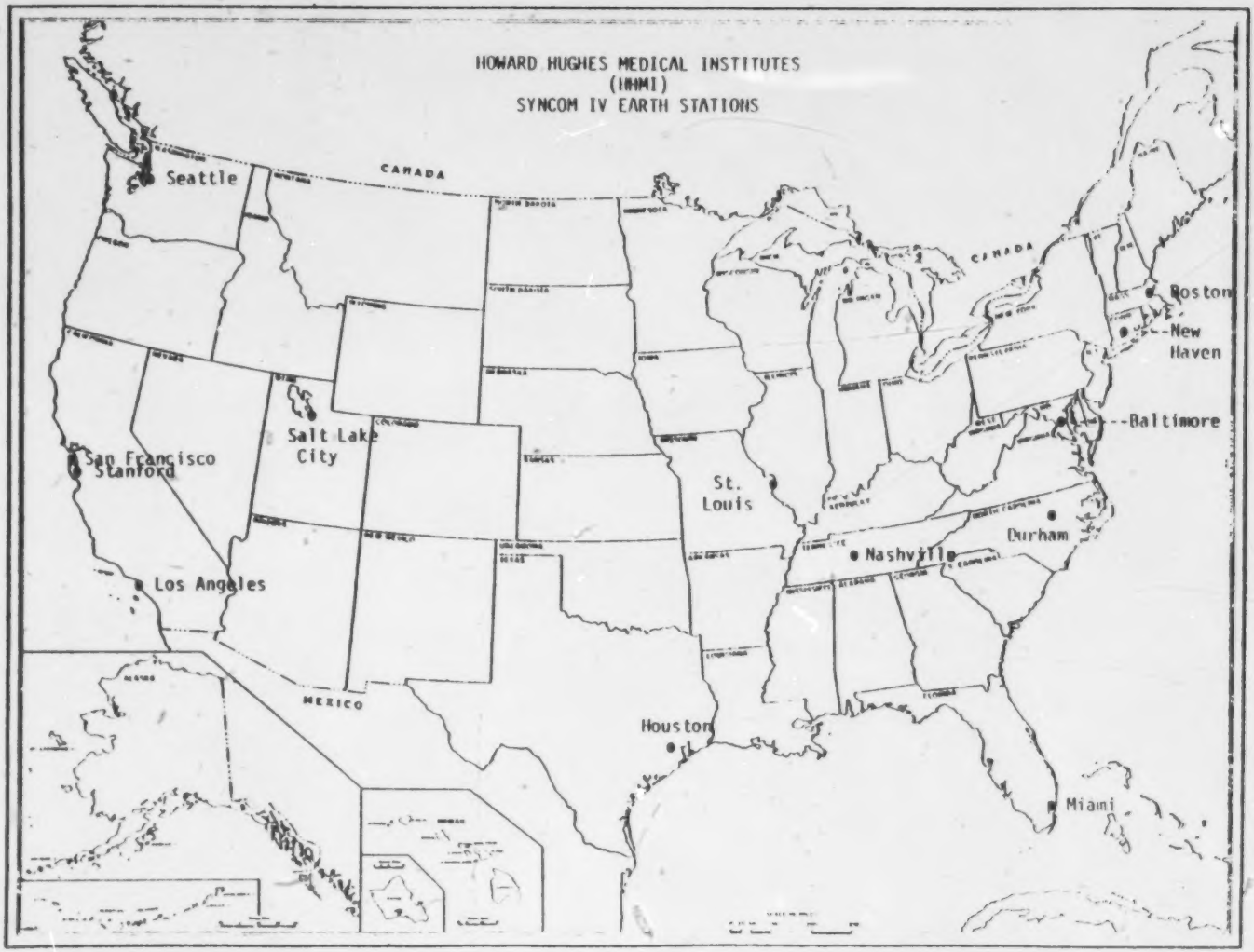
2/22/78

MEDICAL UNIVERSITY OF SOUTH CAROLINA
(MUSC)
ETV (MICROWAVE) HOSPITAL NETWORK*



SOUTH CAROLINA:
- Abbeville
- Aiken
- Anderson
- Bamberg
- Barnwell
- Beaufort
- Camden
- Charleston
- Cheraw
- Chester
- Columbia (4)
- Conway
- Florence
- Georgetown
- Greenville
- Greenwood
- Hartsville
- Lancaster
- Loris
- Marion
- Newberry
- Orangeburg
- Rock Hill
- Spartanburg
- Sumter
- Union
- Varnville
- Walterboro
- West Columbia

*Includes 50 hospitals; not all are represented here.


HOWARD HUGHES MEDICAL INSTITUTES
(HHMI)
SYNCOM IV EARTH STATIONS
CANADA
CANADA
Seattle
Boston
New Haven
Baltimore
Salt Lake City
San Francisco
Stanford
St. Louis
Durham
Nashville
Los Angeles
MEXICO
Houston
Miami

TOTAL ADA POPULATION WITHIN 50 MILES OF HUGHES MEDICAL-SYNCOM IV EARTH STATIONS

Los Angeles, California 900xx	
From Los Angeles alone (900)	256
From within a 50-mile radius of earth station:	
California: 902-908, 910-918, 923-928, 930-931, 935	1,405
Total	1,661
San Francisco, California 94143	
From San Francisco alone (940-941)	363
From within a 50-mile radius of earth station:	
California: 943-954, 956	974
Total	1,337
Stanford, California 94305	
From Stanford-Palo Alto: same as San Francisco	
New Haven, Connecticut 06515	
From New Haven alone (064-065)	159
From within a 50-mile radius of earth station:	
Connecticut: 060-063, 066-069	366
New York: 105-108, 117	364
Total	889
Miami, Florida 33136	
From Miami alone (330-331)	277
From within a 50-mile radius of earth station:	
Florida: 333-334	132
Total	409
Baltimore, Maryland 21205	
From Baltimore alone (210-212)	313
From within a 50-mile radius of earth station:	
Maryland: 206-209, 214, 216-217, 219	368
Delaware: 197-199	96
District of Columbia: 200-205	261
Pennsylvania: 173-176, 193	119
Virginia: 220-223	270
Total	1,427
Boston, Massachusetts 02115	
From Boston alone (021-022)	501
From within a 50-mile radius of earth station:	
Massachusetts: 014-020, 023-027	515
New Hampshire: 030	30
Rhode Island: 028-029	167
Total	1,213
St. Louis, Missouri 63110	
From St. Louis alone (630-631)	380
From within a 50-mile radius of earth station:	
Missouri: 633, 636, 654-655	23
Illinois: 620, 622, 625-626	86
Total	489

SYNCOM IV EARTH STATIONS (2)

Durham, North Carolina 27706	
From Durham alone (277)	33
From within a 50-mile radius of earth station:	
North Carolina: 270, 272-276, 278, 283	271
Virginia: 239, 245	28
Total	332
Nashville, Tennessee 37232	
From Nashville alone (370-372)	157
From within a 50-mile radius of earth station:	
Tennessee: 373, 384-385	49
Kentucky: 421-422	17
Total	223
Houston, Texas 77030	
From Houston alone (770-772)	373
From within a 50-mile radius of earth station:	
Texas: 773-778, 789	147
Total	520
Salt Lake City, Utah 84112	
From Salt Lake City alone (840-841)	160
From within a 50-mile radius of earth station:	
Utah: 843-844, 846-847	63
Wyoming: 829-831	6
Total	229
Seattle, Washington 98195	
From Seattle alone (980-981)	376
From within a 50-mile radius of earth station:	
Washington: 982-985	149
Total	525
GRAND TOTAL (no overlap) - 13 sites	9,254

THE AMERICAN DIETETIC ASSOCIATION

430 NORTH MICHIGAN AVENUE, CHICAGO, ILLINOIS 60611

TELEPHONE: (312) 822-0330

PROPOSED USE OF THE VETERANS ADMINISTRATION CTS NETWORK

The American Dietetic Association is in the process of studying various delivery systems of continuing education to its 35,000 members. One component of this effort is to experiment with the use of communications satellites to deliver continuing education services. During August and September of 1977, ADA (in cooperation with the Lister Hill National Center for Biomedical Communications) provided two continuing education workshops to three cities via CTS. This involved a total of seven transmissions. The general experiment was considered promising by ADA management. Consequently, ADA is interested in continuing its investigation of communications satellites during 1978. In this investigation ADA would like to use a diffuse network of earth stations equipped to recieve transmissions by CTS. Therefore, ADA proposes a cooperative agreement between itself and the Veterans Administration.

During the late spring and summer of 1978, ADA will develop a minimum of four continuing education programs of approximately two hours each to be transmitted on either weekday evenings or Saturdays. The Association proposes to use the 29 VA facilities which are equipped with CTS receive equipment and a dedicated phone line for audio interaction. The general model of operation will be the same as that followed by the Veterans Administration at this time, with the exception that ADA will use a fixed broadcast point rather than a mobile earth station.

The audiences for these programs will be made up of Registered Dietitians. In order to maintain their registered status, all R.D.'s need to acquire 75 continuing education hours during every five-year period. These dietitians would be convened at the local VA facility from the surrounding community. A minimal charge will be made for participation in these continuing education programs to help offset the cost of their development. However, <u>all continuing education programs offered by means of the CTS in Veterans Administration facilities will be available to VA dietitians without charge</u>.

In order to implement this proposal, ADA perceives the need for the support of two types of personnel in the local VA facility: media staff and dietetic staff. An individual from the media staff will be needed to control the technical operation. This would involve a staff person being available to turn on the equipment, monitor its performance during the transmission, and to close up the facility once the program is completed; in selected facilities this individual's services would also be required for a brief "checkout" time two days prior to each transmission. The staff member from dietetics would coordinate the general

program operations with a representative of ADA Headquarters staff, moderate the continuing education program itself, collect and forward to ADA the completed student data instruments and continuing education registration form, and keep the Hospital Director and other relevant VA facility staff informed regarding the general progress of this project.

ADA expects and is willing to support any extraordinary costs incurred by the VA to provide the above support. These costs are expected to include the extraordinary support provided by Communications by Design personnel and local VA technical personnel. ADA would like to see the participation of VA dietetic staff in this project on a voluntary basis. It is hoped that the Veterans Administration would see this as coming within the responsibility of the individual dietary service department to provide training to its personnel, to participate in community service, and to support their professional association.

Once the individual VA facilities have been briefed regarding the agreement with the VA Central Office, ADA proposes to contact the individual Hospital Directors regarding their intent to cooperate in this effort. For those hospitals which indicate a willingness to cooperate in this effort, ADA would then follow up with a VA staff member delegated by the Hospital Director. ADA proposes that this individual be the Chief of Dietetics in each VA facility.

ADA also proposes to inform the individual Hospital Directors regarding the possibility of a four-year demonstration grant award to ADA from the National Institute of Education to further investigate the delivery of continuing education via communications satellite. ADA would request an indication of cooperation for additional continuing education programs to be offered during the fiscal year 1979. During the first year of this demonstration project, ADA is likely to continue the use of CTS. Therefore, ADA is interested in receiving an indication of cooperation through September, 1979.

BOC:jj
1/23/78

THE AMERICAN DIETETIC ASSOCIATION

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PROPOSED COOPERATION WITH THE APPALACHIAN EDUCATION SATELLITE PROJECT

Background

The American Dietetic Association is in the process of studying various delivery systems of continuing education to its 36,000 members. One component of this effort is to experiment with the use of communications satellites to deliver continuing education services.

During 1977 and early 1978, ADA (in cooperation with the Lister Hill National Center for Biomedical Communications) provided a total of nine transmissions to its members via CTS. An additional six transmissions will be provided to ADA members before the end of FY-78; these will be accomplished in cooperation with both Lister Hill and the Veterans Administration (29 CTS earth stations in 11 western states).

Results from these early experiments are promising; therefore, ADA wishes to continue its investigation of communications satellites. In this investigation, ADA would like to use a diffuse network of earth stations equipped to receive transmissions by ATS-6. Therefore, ADA proposes a cooperative agreement between itself and the Appalachian Regional Commission's Appalachian Education Satellite Project.

Audiences for these continuing education programs will comprise Registered Dietitians. In order to maintain their registered status, all R.D.'s need to acquire 75 continuing education hours during every five-year period. There are 2,822 R.D.'s in active practice residing within 20 miles of the present AESP earth station network.

At this time, ADA is submitting a proposal for a 36-month research and development project to the National Institute of Education (DHEW). This agreement will be contingent upon the funding of this proposal by NIE.

Number of Programs

The total number of programs involved in this agreement is 39. These will be independently developed programs of approximately 2 hours in length each. Of these 39 programs, 36 will be developed by ADA through its agreement with the Center for Educational Development (University of Illinois at the Medical Center). The program development staff of AESP will be involved in the early planning stages of all programs in order that the content and evaluation design meet the needs of AESP as well as ADA. An additional three programs would be developed between ADA and AESP production staff; these three programs will be used for public education on nutritional issues relevant to the Appalachian population.

The development of the 36 programs by ADA/CED will take place during FY-79 and FY-80; 18 programs will be developed in each of the two fiscal years. The public education programs developed in conjunction with AESP would be accomplished at the rate of one per year during FY-79, FY-80, and FY-81.

Number of Broadcasts

There would be approximately 128 total hours of broadcast during the three fiscal years (FY-79 through FY-81). In FY-79 there would be 26 broadcasts (13 programs broadcast to each of the two ATS-6 footprints within the Appalachian Region). In FY-80 there would be 25 broadcasts via WESTAR. In FY-81 there would be 13 broadcasts via WESTAR. This yields a total of 64 broadcasts within the three years.

Registration Fees

ADA intends to charge a registration fee for all continuing education programs offered to R.D.'s via the AESP network. These fees would increase over the three years. It is important to ADA that these fees do not become extraordinarily high, but it is also ADA's intent to eventually develop continuing education programming on a cost-recoverable basis. Nutrition programs for the general public will have a lower fee due to a lower breakeven point. ADA proposes to split all fees with AESP on an equal basis (50/50).

Period of Agreement

This agreement is proposed to take effect July, 1978 and continue through the end of FY-81 (September 30, 1981). The initial three months of the project during FY-78 are intended for use as a planning period. The last six months of the project (April through September, 1981) will be used to complete the evaluation of the project which would have been initiated during FY-79.

Institutional Communications

The major contact for ADA will be the Principal Investigator for this project. This individual will be prepared to attend AESP project meetings on a quarterly basis; the P.I. will also maintain frequent communication with the AESP Central Office between these sessions. Additional communication links will be established between the P.I., CED staff, and the AESP Resource Coordinating Center at Lexington, Kentucky. All communication from the AESP earth stations is expected to occur through the AESP Central Office or RCC staff.

Satellite Transmissions

During FY-79, ADA would expect to utilize ATS-6 (and ATS-3 as necessary) for the transmission of its programs to the AESP network. All arrangements regarding the use of this communications satellite would be assumed by AESP. During FY-80 and FY-81, ADA expects to purchase time on WESTAR. The signal would be received in the Appalachian Region at local PBS stations. Local audiences will either be convened by AESP at the PBS station or, where convenient, the transmission will be fed into the head end of a cable network for transmission to local residences. ADA understands that AESP is interested in the use of SYNCOM IV if and when it's feasible. Pending the outcome of that or other explorations, ADA intends to cooperate with AESP in order to use the resulting network.

Local Institutional Arrangements

ADA proposes that AESP be responsible for all local arrangements. This would entail program promotion and coordination of audiences of dietetic practitioners (either centrally convened or residence-based when cable is used). ADA will supply AESP with all information necessary to contact R.D.'s living in the area of its earth stations. ADA will develop generalized promotional material regarding its programs in order that it may be used in any area of the country when supplemented by locally produced copy which specifies the local viewing arrangements and registration fees. ADA will also supply all program software for content reinforcement and evaluation.

It is likely that AESP would wish to identify a "discussant" at the local level to attend these programs free of charge in order to assist in the stimulation of interaction. This discussant could be a non-dietitian, but should be someone generally familiar with the subject under discussion.

The representative of AESP at the local level would be responsible for supervising the completion of any evaluative instruments and the forms necessary for the accountability of the individual R.D.'s participation in the program (e.g., a registration form from each site will need to be submitted to ADA Headquarters in order that the R.D.'s record can be credited for a given number of continuing education hours). It is expected that ADA's revenue from these programs will be based on the number of students completing this registration form.

ADA is interested in two types of audience settings within the AESP network. The first is a group viewing setting at the earth station facilities. It is expected that at this setting there will be a discussant and some provision made for allowing the communication of interactive discussion between the program talent and the audience. The second type of audience of interest within the AESP network is the residence-based viewer who receives the program via the local cable network. ADA will wish to evaluate its programs in both of these settings. It is proposed that the local contact person for AESP will maintain the accountability for the use of the programs for not only the group viewers, but also for the residence viewers. This would be done by the selective distribution of program software.

Charges to ADA

ADA proposes to share all gross revenue derived from registration fees equally (50/50) with AESP. Through the end of FY-79, this revenue will be supplemented by an additional $1,000 per program (i.e., $13,000) payment to be made by ADA to AESP in order to cover AESP's operations costs which are expected to exceed its revenue. During FY-80 and FY-81, no additional charges will be made to ADA for broadcasts in the AESP network other than AESP's continued share of the gross revenues (50%).

The cost of development of the three programs for public nutrition education by ADA and AESP's RCC will be charged to ADA. AESP will receive title credits for its cooperation in the development of the programs; ADA will have ownership of the product of this effort.

3/23/78
BOC:msm

THE AMERICAN DIETETIC ASSOCIATION
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PROPOSED WORKING AGREEMENT BETWEEN THE AMERICAN DIETETIC ASSOCIATION AND THE ELEVEN WESTERN STATE DIETETIC ASSOCIATIONS FOR THE IMPLEMENTATION OF AN EXPERIMENT IN THE COMMUNICATIONS SATELLITE DELIVERY OF CONTINUING EDUCATION

Purpose

The purpose of this document is to propose a working agreement between the American Dietetic Association (ADA) and each of the eleven western state dietetic associations (SDA's) for two phases of an experiment in the delivery of continuing education by communications satellite to the western United States. The objective of this communications experiment is to examine the feasibility of a national delivery system of continuing education by means of communications satellite and to develop a working model relationship between ADA and the SDA's which will be limited to: the development of programming, promotion of these continuing education events, the setting of fees, the local coordination of operations, and the co-investment and revenue sharing in this project.

Project Advisory Board

It is proposed that a board will be formed to advise the ADA Principal Investigator in these communications satellite experiments and to assist in the setting of policy regarding their operation. Specifically, this board will:

- Initiate program content suggestions.
- Coordinate experiment operations among the SDA's in the eleven western states.
- Assist in the scheduling of programs so that there are not conflicts with major SDA functions.
- Identify facilitators for each earth station within the individual states.
- Negotiate a co-investment/revenue sharing arrangement with ADA.
- Brief their SDA Board of Directors and the House of Delegates representatives from the members' respective states regarding progress.

The Project Advisory Board will be made up of one representative from each SDA. The initial Board members will serve until September, 1979.

Period of Agreement

There are two periods of agreement relevant to this proposal. The first concerns STARDATE '78. This is a project financed as a Program of Work under The American Dietetic Association for the fiscal year 1978. A substantial amount of activity under STARDATE '78 will take place in the eleven western states due to an agreement between the Veterans Administration and ADA regarding the sharing of 29 earth stations in those states which are capable of receiving a television signal from the Communications Technology Satellite (CTS). This project is currently in effect and will continue to be operable through October, 1978.

The second period of activity could take place between October, 1978 and September, 1979. For the purposes of this proposal, this phase of activity will be known as the "NIE Project." The implementation of this project is contingent upon approval and funding by the National Institute of Education (NIE) of a four-year demonstration project regarding the delivery of continuing education by communications satellite. A proposal from ADA for this project will be received by NIE on March 31, 1978.

It should be noted that this proposal is not only in regard to the use of ADA Program of Work dollars, but will also involve the eleven western state dietetic associations in a federally funded project during its first year of operation (October, 1978 through September, 1979). Although the NIE Project, if funded, will continue through fiscal year 1982, this proposal does not address itself to the latter three years of that four-year project; again, this proposal only addresses STARDATE '78 and the first year of a possible four-year federally funded project by NIE. Therefore, the total period of this agreement between ADA and the SDA's is from March, 1978 through September, 1979. If appropriate, this agreement would be re-negotiated at that time for future years of activity.

Responsibilities of State Dietetic Associations

1. Appoint a representative to the Project Advisory Board. This individual will need to be empowered to represent the SDA in the setting of policy and procedures for the development and implementation of the communications experiment. Each SDA will be responsible for selecting one Project Advisory Board member. This individual will also be the "linking pin" in communication between ADA and the SDA.

2. The selection of facilitators for each earth station. The SDA will need to select at least one facilitator for each earth station location to be used within their state. This person will be responsible for the following activities:

- Coordination of logistics with the local Veterans Administration dietetics chief or his/her representative regarding the convening of participants in continuing education programs offered via communications satellite.

- The receiving and previewing of software for the various continuing education programs.

- The coordination of interaction with the program faculty by means of a special phone "talkback" system.

- The collection of data using ADA instruments.

- Attendance at any planning sessions to be held throughout the eleven state region or within the state itself.

- Receive and circulate resource/reference materials (e.g., handouts, mini-library contents, etc.).

- Submit receipts to ADA for any relevant project expenses incurred.

- Maintain communication with the SDA Project Advisory Board representative regarding policy and the progress of operations.

- Provide, when necessary, local program content support (i.e., to locate a local practitioner who is knowledgeable in the area of a given program if necessary). It should be noted that it is the intent of ADA to design the continuing education programs delivered via this communications experiment in such a way that they will not usually require anyone with highly technical knowledge and/or experience in any one subject area.

3. To provide or delegate the local promotion of the continuing education programs to be offered under this experiment. Under STARDATE '78, the general promotion of these programs (i.e., a brochure of a general nature, registration form, and basic information regarding local participation sites) will be handled by ADA from its Headquarters. During STARDATE '78, it is expected that the SDA will reinforce that promotional effort through its usual channels of communication with its membership.

   During the NIE Project, the major responsibility for promotion will be placed upon the SDA. ADA would print centrally any general information regarding the continuing education programs to be offered, but would depend upon the SDA for local distribution and any additional information necessary for the recruitment of participants.

4. Co-investment and revenue sharing. During STARDATE '78, there will be no recruitment of the SDA to co-invest nor any ability for the SDA to share in any revenues received. The greater part of this project is financed from an ADA Program of Work; these monies will be supplemented by income derived from nominal registration fees.

It should be recognized that the NIE experiment will be designed to study the economic feasibility of continuing education delivered by means of communications satellite. Therefore, it is the intent of ADA to explore a co-investment and revenue sharing arrangement with the SDA. Although the specific nature of this arrangement will need to be negotiated by the Project Advisory Board and ADA, it can be anticipated that this arrangement would include the assignment of responsibility to the SDA to invest a reasonable amount of money in the production and delivery of continuing education programs via communications satellite. Also, a formula to share the revenue derived from these programs offered during the NIE Project will need to be developed. The potential for the SDA to approach this project as a revenue-producing source is clearly evident and intended.

Responsibilities of ADA

ADA will be responsible for the following:

1. To produce, during STARDATE '78, a minimum of three continuing education programs. One or more of these may be a series of educational events (i.e., one program may involve more than one session). These programs will be developed in an educationally sound manner through cooperation with professionals experienced in curriculum development and design. It is ADA's intent to draw on talent from the eleven western states for program faculty.

2. General coordination with the Veterans Administration Hospitals throughout the eleven-state area and the VA's Central Office (Washington, D.C.) regarding the use of their earth station facilities.

3. Coordination with the appropriate parties who control access to the satellite and the broadcast sites (the National Aeronautics and Space Administration and the Lister Hill National Center for Biomedical Communications respectively).

4. Corresponding with the Project Advisory Board regarding the setting of policies and procedures for the implementation of this experiment.

5. The selection and support of program faculty.

6. The training of local facilitators which are selected by the SDA.

7. The reimbursement of any expenses incurred by the Project Advisory Board members and local facilitators in the implementation of this experiment.

8. The design and printing of all data collection instruments for the use of local facilitators.

9. The provision of accurate and timely information and materials to both Project Advisory Board members and local facilitators, where appropriate.

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